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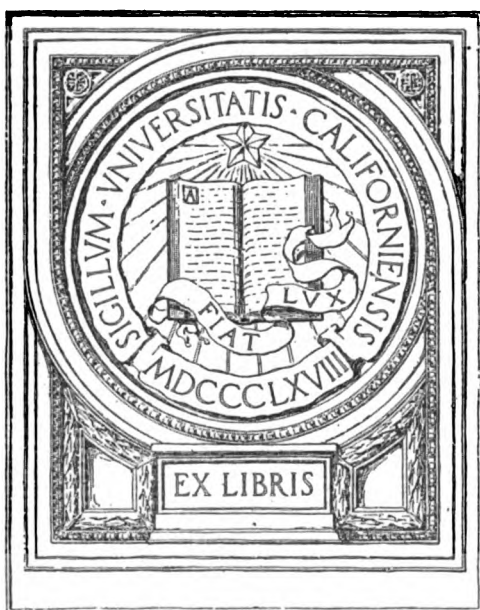
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ANNUAL REPORT
OF THE
DEPARTMENT OF HEALTH
OF
THE CITY OF NEW YORK



UNIV. OF
CALIFORNIA

FOR THE
CALENDAR YEAR 1918

NEW YORK CITY
1919

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BOARD OF HEALTH

Commissioner of Health and President of the Board

J. LEWIS AMSTER, M.D.
(January 16 to April 28)

ROYAL S. COPELAND, M.D.
(April 29 to December 30)

Health Officer of the Port
LELAND E. COFER, M.D.

Police Commissioner
FREDERICK HAMILTON BUCHER
(January 1 to January 23)

RICHARD E. ENRIGHT
(January 23 to December 31)

Secretary to the Board
CHARLES L. KOHLER

DIRECTORY OF DEPARTMENT OF HEALTH. OFFICES.

Headquarters: 139 Center St., Manhattan.
Borough of The Bronx, 3731 Third Avenue.
Borough of Brooklyn, Flatbush Avenue and Willoughby Street.
Borough of Queens, 372-374 Fulton Street, Jamaica, L. I.
Borough of Richmond, 514-516 Bay Street, Stapleton, S. I.
Office Hours—9 a. m. to 5 p. m.; Saturdays, 9 a. m. to 12 m.

HOSPITALS FOR CONTAGIOUS DISEASES.

Manhattan—Willard Parker Hospital, foot of East 16th Street.
The Bronx—Riverside Hospital, North Brother Island.
Brooklyn—Kingston Avenue Hospital, Kingston Avenue and Fennimore Street.
Queens—Queensboro Hospital, Flushing Avenue and Lotts Lane.

LABORATORIES.

Diagnosis Laboratory, Serological Laboratory.
Research Laboratory, Chemical Laboratory, Vaccine Laboratory, foot of East Sixteenth Street.
Antitoxin Farm and Laboratory, Otisville, N. Y.

BABY HEALTH STATIONS.

Manhattan.

- | | | | |
|-----------------------|------------------------|-----------------------|---------------------|
| 1. 172 East 3d St. | 8. 224 West 63d St. | 15. 348 East 74th St. | 22. 73 Cannon St. |
| 2. 513 East 11th St. | 9. 326 East 11th St. | 16. 205 East 96th St. | 23. 95 Suffolk St. |
| 3. 306 Avenue A. | 10. 114 Thompson St. | 17. 209 Stanton St. | 24. 206 Madison St. |
| 4. 443 1st Ave. | 11. 315 East 112th St. | 18. 343 Pleasant Ave. | 25. 214 Monroe St. |
| 5. 225 East 107th St. | 12. 244 Mulberry St. | 19. 108 Cherry St. | 26. 289 Tenth Ave. |
| 6. 241 East 40th St. | 13. 508 West 47th St. | 20. 197 Hester St. | 27. 95 Forsyth St. |
| 7. 174 Eldridge St. | 14. 78 Ninth Ave. | 21. 27 Suffolk St. | 28. 2155 Fifth Ave. |

Brooklyn.

- | | | | |
|---------------------|-----------------------|------------------------|----------------------|
| 1. 268 South 2d St. | 7. 359 Manhattan Ave. | 13. 604 Manhattan Ave. | 19. 698 Henry St. |
| 2. 621 Fourth Ave. | 8. 49 Carroll St. | 14. 179 Bedford Ave. | 20. 594 Sutter Ave. |
| 3. 208 Hoyt St. | 9. 76 Johnson Ave. | 15. 296 Bushwick Ave. | 21. 167 Hopkins St. |
| 4. 144 Navy St. | 10. 233 Suydam St. | 16. 904 Flushing Ave. | 22. 592 Park Ave. |
| 5. 2346 Pacific St. | 11. 323 Osborn St. | 17. 176 Nassau St. | 23. 165 Ten Eyck St. |
| 6. 184 Fourth Ave. | 12. 107 Dupont St. | 18. 129 Osborn St. | 24. 49 Amboy St. |

The Bronx.

- | | | | |
|-----------------------|----------------------|----------------------|---------------------|
| 1. 511 East 149th St. | 2. 428 East 133d St. | 3. 1354 Webster Ave. | 4. 2380 Hughes Ave. |
|-----------------------|----------------------|----------------------|---------------------|

Queens.

- | | | |
|------------------------------|------------------------------|-----------------------------------|
| 1. 114 Fulton Ave., Astoria. | 2. 22 Maspeth Ave., Maspeth. | 3. 753 Onderdonk Ave., Ridgewood. |
|------------------------------|------------------------------|-----------------------------------|

Richmond.

699 Bay Street, Stapleton, S. I.

CLINICS FOR VENEREAL DISEASES. ADVISORY CLINICS.

Manhattan.

Main Clinic, 139 Center Street.....	<div style="font-size: 3em; vertical-align: middle; padding: 0 10px;">{</div> <p>Week days, 9 a. m. to 12 M. Monday, Tuesday, Thursday, Friday, 9.30 a. m. to 12 noon. Wednesday, Saturday, 7.30 p. m. to 10 p. m.</p>
Stuyvesant Clinic, 111 East 10th Street.....	
Jefferson Clinic, Pleasant Avenue and 118th Street.....	
Chelsea Clinic, 307 West 33d Street.....	
Washington Clinic, 128 Prince Street.....	

The Bronx.

	Monday, Tuesday, Thursday, Friday, 9.30 a. m. to 12 noon.
Tremont Clinic, St. Paul's Place and Third Avenue.	Monday, Friday, 7.30 p. m. to 10 p. m.

Brooklyn.

Prospect Clinic, Fleet and Willoughby Streets....	<div style="font-size: 3em; vertical-align: middle; padding: 0 10px;">{</div> <p>Tuesday, Wednesday, Thursday, Friday, 9.30 a. m. to 12 noon. Monday, Friday, 7.30 p. m. to 10 p. m.</p>
Brownsville Clinic, 64 Pennsylvania Avenue.....	
Eastern District Clinic, 306 South Fifth Street..	

CLINICS FOR VENEREAL DISEASES—ADVISORY CLINICS—Continued

Queens.

Jamaica Clinic, 372-374 Fulton Street, Jamaica.... { Monday, Wednesday, 10 a. m. to 12 noon.
Tuesday and Thursday, 2 to 4 p. m.
Wednesday, Saturday, 8 to 10 p. m.

Queens Plaza Clinic, 139 Hunter Avenue, L. I. City. { Tuesday, Friday, 10 a. m. to 12 noon.
Monday, Wednesday, 2 p. m. to 4 p. m.
Tuesday, Thursday, 8 p. m. to 10 p. m.

Richmond.

Richmond Clinic, Bay and Elizabeth Sts., Stapleton { Tuesday, Thursday, Saturday, 2 p. m. to 4.30 p. m.
Monday, Wednesday, Friday, 7.30 p. m. to 9.30 p. m.

TREATMENT CLINICS.

Chelsea Clinic, 307 West 33d Street..... { Monday, Tuesday, Thursday, Friday, 9.30 a. m.
to 12 noon.
Wednesday, Saturday, 7.30 p. m. to 10 p. m.

ANTI-RABIC CLINICS.

Manhattan—Week days, 1 to 4 p. m.

Brooklyn—29 Third Ave. Week days, 10 a. m. to 1 p. m. Sundays and holidays, 10 a. m. to 12 m.

The Bronx—29 Third Avenue and St. Paul's Place. Week days, 11 a. m. to 1 p. m.

Queens—Patients attend Brooklyn or Manhattan Clinic.

Richmond—Patients attend Manhattan Clinic.

On Sundays and holidays patients of all Boroughs attend Brooklyn Clinics. Hours on these days, 10 a. m. to 12 noon.

Immunization against typhoid fever will be given on request at these clinics.

OCCUPATIONAL CLINIC.

Manhattan—128 Prince Street. Week days, 9 a. m. to noon.

The Bronx—493 East 139th Street. Week days, 2 to 4 p. m.

DIVISION OF NARCOTIC REGISTRATION.

Manhattan—128 Prince Street. Week days, 10 a. m. to 5 p. m.; Tuesday, Thursday, Friday, 7 to 9 p. m.; Sunday, 2 to 6 p. m.

NARCOTIC RELIEF STATION.

Manhattan—145 Worth Street. 3 to 9 p. m. daily except Sunday and holidays.

BRANCH OFFICES AND TUBERCULOSIS CLINICS.

Manhattan—Corlears, 331 Broome Street.

Stuyvesant, 111 East 10th Street.

Yorkville, 439 East 57th Street.

Jefferson, 341 Pleasant Avenue.

Riverside, 481 West 145th Street.

Chelsea, 307 West 33d Street.

Washington, 128 Prince Street.

Day Camp, Ferryboat "Manhattan," foot East 90th Street.

The Bronx—Tremont, St. Paul's Place and Third Avenue.

Mott Haven, 493 East 139th Street.

Brooklyn—Prospect, Fleet and Willoughby Streets.

Eastern District, 306 South 5th Street, Williamsburg.

Bedford, 420 Herkimer Street.

Brownsville, 64 Pennsylvania Avenue.

Parkville, 974 West Street.

Bay Ridge, 215 60th Street.

Day Camp, Ferryboat "Rutherford," foot of North 2d Street.

Queens—Jamaica, 372-374 Fulton Street, Jamaica.

Corona, 127 46th Street (near Alburts Avenue "L" Station).

Ridgewood, 753 Onderdonk Avenue, Ridgewood.

Queens Plaza, 138 Hunter Avenue.

Richmond—Richmond, Bay and Elizabeth Streets, Stapleton.

HOSPITAL DIAGNOSIS STATION.

Manhattan—128 Prince Street. Hours, 2 to 4 p. m., Tuesday, Thursday, Saturday.

SANATORIUM FOR TUBERCULOSIS

Otisville, Orange County, N. Y. (via Erie Railroad from Jersey City).

TUBERCULOSIS HOSPITAL ADMISSION BUREAU.

145 Worth Street. Hours, 9 a. m. to 5 p. m.

DEPARTMENT OF HEALTH,
CITY OF NEW YORK,
505 PEARL STREET, BOROUGH OF MANHATTAN.

NEW YORK, October 30, 1919.

To His Honor

The Mayor of the City of New York.

SIR: On behalf of the Board of Health I have the honor to transmit herewith, as required by Section 1168 of the Charter of the City of New York, a report of all the operations of the Department of Health of the City of New York for the year ending December 31, 1918.

Very respectfully,

ROYAL S. COPELAND,
Commissioner of Health.

REPORT OF THE DEPARTMENT OF HEALTH, CITY OF NEW YORK, FOR THE YEAR 1918

BUREAU OF GENERAL ADMINISTRATION

With the advent of the new administration the Bureau of General Administration was reorganized with a view to obtaining better efficiency by decentralization of the clerical and stenographic forces and bringing the Purchasing Agent and the Board Clerk and the Auditor's Office under direct supervision of the Secretary.

The outstanding features of the work of the Bureau were the enormous increase in volume of the work of all divisions due to the war and the campaign against the epidemic of Spanish Influenza, the business end of which was handled by the office of the Secretary, and involved appointment of 557 temporary employees and disbursement of \$140,000 in personal service and purchase of supplies.

OFFICE OF THE CHIEF CLERK.

The work of this office was handicapped by loss of twenty-six experienced employees, who either enlisted or were drafted into Federal Service and their places filled by substitutes appointed for period of the war.

With exception of the number of permits issued, all branches of the work showed an increase in volume over 1917. This exception is explained by the fact that a change in policy of the Department during 1917 made all permits good until revoked, instead of the necessity of having them renewed annually, as heretofore.

COMPLAINTS AND REPORTS.

	1917	1918
Complaints pending December 31.....	1,123	1,051
Citizens' complaints received.....	43,970	48,871
Reports of original inspections.....	8,761	9,101
No cause for action (Complaints).....	17,178	18,681
Nuisance abated by personal effort (Reports).....	8,792	7,830
Reference to other City or State Departments....	14,489	19,485
Complaints returned for Notice or Order.....	12,121	12,158
Notices and Orders pending December 31.....	1,468	1,919
Notices and Orders issued.....	12,121	12,158

As shown by the above, the most decided increases in 1918 over 1917 in this branch of work were in the number of complaints received and references to other departments and bureaus.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

The winter of 1917-1918 was exceptionally cold, and the scarcity of coal reached such proportions as to cause great suffering.

This condition naturally led to a marked increase in the number of complaints in regard to lack of heat. The Fuel Administrator co-operated with this department by issuing orders upon coal merchants for delivery of coal to families in which there was sickness upon receipt of a letter from the department informing him of this fact.

By far the greatest number of references from this to other departments is made to the Tenement House Department, many citizens being under impression that any complaint in regard to insanitary conditions should be made to the Department of Health regardless of the character of premises.

CLERICAL AND STENOGRAPHIC SERVICE.

As mentioned, a new policy was inaugurated whereby the stenographic and clerical forces were decentralized. Approximately forty-five stenographers and typists in Manhattan were assigned to the various bureaus and offices on April 11, and the decentralization in other boroughs took place at later dates.

The centralization of clerks not being as complete as that of stenographers, their permanent assignment to the various offices was made gradually.

LABORATORY PRODUCTS.

	1917	1918
Laboratory products sold.....	\$41,216.36	\$91,405.78
Laboratory products free.....	161,413.75	150,720.45

The above represents an increase in value of laboratory products distributed of \$39,496.12 over 1917. The distribution The Bronx exceeded that of last year by more than one-third.

TRANSCRIPTS OF VITAL STATISTICS.

The work of the Transcript Clerks was especially heavy in all boroughs.

Receipts	1917	1918
Manhattan	\$23,790.43	\$36,086.10
Bronx	3,753.40	6,313.20
Brooklyn	13,901.20	22,777.25
Queens	2,221.95	3,383.15
Richmond	670.85	1,056.80
City	<u>\$44,337.83</u>	<u>\$69,616.50</u>

During 1917, in Manhattan, 45,196 applications were received for searches of the records of vital statistics, sanitary violations and employment certificates, with fees amounting to \$23,790.43; during 1918, 69,886 applications were

BUREAU OF GENERAL ADMINISTRATION

received and fees amounting to \$36,186.10. The normal receipts are approximately \$1,800 per month in this borough, but in September \$7,645.95 was received—more than four times the usual amount.

The abnormal increase in this work was largely due to demand for birth certificates for use in the second draft registration and the slacker raids by Department of Justice, while the unusual number of deaths during the influenza and pneumonia epidemics was accountable for the larger number of applications for transcripts of death records.

CENTRAL FILE.

The Central File in Manhattan reflects somewhat the increase in work, as follows

	1917	1918
Papers received	123,586	254,207
Papers requested	4,196	4,158

POSTAGE.

The total postage distributed in this department during 1918 was \$39,519.89, while the expense in 1917 was \$39,662.32, a saving of \$142.43, in spite of postage rate increases in 1918, and the epidemic of Spanish Influenza which considerably increased the activities of several bureaus of the department.

LIBERTY LOANS, RED CROSS, UNITED WAR WORK CAMPAIGN.

In addition to the enormous increase in practically every branch of the work caused by the war and influenza epidemic, the Liberty Loans, United War Work Campaign, and Red Cross Christmas Roll Call were handled in this office. The following shows amount collected for each:

Third Liberty Loan.....	\$90,850.00
Fourth Liberty Loan.....	257,100.00
United War Work Campaign.....	3,986.12
Red Cross	429.00

PURCHASING AGENT.

The value of closer relations between the Purchasing Agent and the Secretary was shown by the ease with which work of the Purchasing Agent was performed. Another factor which materially added to efficiency was the placing of storehouses of the Department under jurisdiction of the Purchasing Agent, which enabled him to assemble surplus stocks for distribution among other divisions and bureaus where they were required, without making new purchases. The efficiency of this office stood out throughout the year, for although

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

war conditions narrowed the markets to such extent that purchase of food supplies, coal, and other necessities for maintenance of institutions of the Department was limited to a very great degree, there was no time that an actual scarcity arose.

During the Influenza Epidemic, the Department established five emergency hospitals for treatment of influenza patients which almost doubled our capacity of beds, and in like manner doubled the demand for supplies and equipment, which were successfully furnished to meet the occasion.

	Number	Amount
Requisitions approved	3,066	\$1,269,542.98
Contracts executed	174	514,734.70
Contract orders issued.....	1,260	557,916.90
Open Market orders issued.....	6,558	711,626.08

DIVISION OF CONSTRUCTION AND REPAIRS.

On account of the extreme cold during winter of 1918 it was necessary to close two of the boat camps for an indefinite period, and work of the Baby Health Stations and Tuberculosis Clinics was hampered as the water and gas supply lines and plumbing fixtures were frozen.

In the early part of the year a new procedure was put into operation for collection of laboratory specimens and delivery of laboratory products by auto trucks. Two routes were established in Manhattan covering the entire borough, and one covering one-half of Brooklyn. This work has been satisfactory and it is proposed to extend the auto truck collection.

AUDITOR'S REPORT

Appropriation and Special Funds, including Transfers

Personal Service.....	\$2,940,586.
Other than Personal Service.....	1,061,798.00

Revenue Bond Funds

Spanish Influenza Epidemic.....	140,000.00
	<u>\$4,142,384.50</u>

Expenditures, including Unliquidated Obligations

Personal Service.....	2,554,417.09
Other than Personal Service.....	1,054,064.04
Spanish Influenza Epidemic.....	136,668.20
	<u>\$3,745,149.33</u>

Cash Receipts

Sales of Antitoxines.....	75,997.18
Sales of Virus.....	15,408.60
Pay Patients, U. S. Government.....	165,466.00
Pay Patients, City Hospitals.....	4,044.50
Pay Patients, Sanatorium, Otisville.....	902.93
Transcripts.....	69,616.50
Bulletin Subscriptions.....	355.32
Poliomyelitis and Milk Products.....	281.31
Waste Paper.....	283.78
Auction Fat.....	549.40
Miscellaneous Refunds.....	1,350.21
	<u>\$334,255.73</u>

BUREAU OF GENERAL ADMINISTRATION

Cash Disbursements, Contingent Funds

Country Milk Inspection.....	23,864.07
Postage and Express.....	47,500.00
Collectors, Diagnosis Laboratory.....	2,865.05
Food and Drug Samples.....	184.19

\$74,413.31

Pension Fund

Cash on hand, Jan. 1, 1918.....	10,698.02
Receipts.....	80,755.66

\$91,453.68

Disbursements.....	119,819.59
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\$28,365.91

Deficit.....	
Loan on Corporate Stock Bonds.....	\$20,000.00
Sale of Corporate Stock Bonds.....	21,000.00

41,000.00

Cash on hand, Dec. 31, 1918.....	\$12,634.09
Corporate Stock Bonds.....	294,000.00
Less: Loan.....	20,000.00

274,000.00

Total Assets.....	\$286,634.09
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Laboratory Products

Cash Receipts.....	\$91,405.78
Distributed free.....	150,720.45

\$242,126.23

Requisitions approved.....	3,066	1,269,542.98
Contracts registered.....	174	514,734.70
Orders, contract and open market.....	7,818	1,269,542.98
Invoices.....	8,350	1,110,850.45
Vouchers.....	5,219	
Invoices 1918.....		1,110,850.45
Invoices prior year.....		16,521.79

Payrolls

Employees paid semi-monthly, average.....	2,250.00
Employees paid monthly, average.....	850.00
Employees paid on war payrolls, average.....	192.00
Amount of payrolls.....	2,617,096.31
Payroll sheets examined and audited.....	7,000.00
Number of payroll changes.....	9,000.00
Deductions for absence without pay.....	1,500.00
Refunds to City Paymaster.....	929.00

It is impossible to express in figures the work in connection with Central Stores and Expense Accounting, as well as preparation of the "Other than Personal Service" budget.

LAW DIVISION

The Law Division exercises supervision and control over all legal activities of the Department. The relationship existing between the Law Division and the various branches of the Department constitutes an important factor in administration of the Department, not recognized except by those familiar with the very important part the Sanitary Code and the Regulations play in public health administration.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

The Sanitary Code is one of the most comprehensive bodies of health laws in existence, the regulatory provisions thereof controlling persons, firms and corporations whose trades, businesses, or occupations are such as to come within jurisdiction of the Board of Health in exercising its delegated powers, authority and jurisdiction in protecting the public from nuisance and conditions prejudicial to life and health. The Regulations of the Board of Health supplement provisions of the Sanitary Code and prescribe in greater detail than could be included in the Sanitary Code the special requirements under which various trades, businesses, and occupations may be established, conducted and maintained, and which control activities of the class to which they particularly apply. Both the Sanitary Code and the Regulations have the force and effect of law, and a violation of their provisions may result in criminal prosecution for a misdemeanor, which carries with it a maximum fine of five hundred dollars or one year in jail or both, or a civil action to recover a penalty of fifty dollars may be instituted.

Before any legal action, criminal or civil, is instituted by the Department against an alleged offender, the facts and circumstances surrounding each particular complaint are carefully reviewed, both by administrative officers of the branch of the Department charged with enforcement of the provision of law involved and by the Law Division, in order that trivial and technical violations may not be presented to the court, and so that the alleged offender may be given benefit of every reasonable doubt before complaint is submitted to court for consideration. This procedure has proven beneficial to the Department as well as to those against whom complaints have been filed. The interests of the person charged with a violation of provisions of the Sanitary Code or Regulations are further protected because no complaint is submitted to the courts until it has been thoroughly investigated by Inspectors of the Department whose duty it is to obtain necessary legal evidence against the offender and to submit a detailed report as to facts and circumstances surrounding each alleged violation and to express an opinion as to whether his investigation disclosed a violation of law. This report is reviewed by the administrative officials of the Department, and if a question of doubt arises as to guilt of the person charged, hearings are held in order that he may submit an explanation, and evidence which would tend to relieve him of responsibility. This procedure has worked out most satisfactorily as evidenced by the particularly high percentage of convictions obtained in the criminal courts.

The volume of legal work performed by this Division in behalf of the Department and in co-operation with the Corporation Counsel is steadily increasing. This may be explained, in a measure, to war conditions resulting in high price and scarcity of food and drugs during the emergency, which naturally increased opportunity for fraud, misrepresentation, and substitution. An exceptionally large number of important prosecutions and convictions of unscrupulous persons, firms, and corporations have been obtained during the year, to which

BUREAU OF GENERAL ADMINISTRATION

reference will be made by the bureau or division from which the complaints emanated.

COUNSEL NOTICES—1918.

Counsel Notice Received.....	4,117
Counsel Notice Sent.....	3,812
Criminal Action Instituted.....	235
Civil Action Instituted.....	19

MAGISTRATES' COURTS

REPORT OF DISPOSITION OF CASES FOR THE YEAR ENDING DECEMBER 31st, 1918.

	Manhattan	Bronx	Brooklyn	Queens	Richmond	Total
Held in bail for Special Sessions.....	4	.....	.....	.....	.....	4
Fined.....	1505	492	986	342	324	3649
Sentence Suspended.....	286	53	353	284	46	1022
Prison Sentences.....	29	.....	8	.....	.....	37
Acquitted.....	20	5	6	2	4	37
Dismissed (Nuisance abated or complaint withdrawn before trial).....	51	6	3	27	78	145
Total Prosecutions Instituted.....	1875	566	1356	655	452	4894
Amount of Fines Imposed.....	\$2843	\$873	\$1720	\$1044	\$373	\$6853

COURT OF SPECIAL SESSIONS—1918.

REPORT OF DISPOSITION OF CASES FOR THE YEAR ENDING DECEMBER 31st, 1918.

	Manhattan	Bronx	Brooklyn	Queens	Richmond	Total
Dismissed (Nuisance abated or complaint withdrawn before trial).....	15	3	2	3	.....	23
Acquitted.....	.....	1	1	.....	.....	2
Jail Sentence.....	.....	.....	.....	.....	1	1
Sentence Suspended.....	4	2	3	.....	3	12
Fined.....	22	3	3	3	7	38
Total Prosecutions Instituted.....	41	9	9	6	11	76
Amount of Fines Imposed.....	\$2785	\$150	\$100	\$225	\$1585	\$4795

MUNICIPAL TERM COURTS.

REPORT OF DISPOSITION OF CASES FOR THE YEAR ENDING DECEMBER 31st, 1918.

	PART I Manhattan and The Bronx	PART II Brooklyn	Total
Dismissed (Nuisance abated or complaint withdrawn before trial).....	166	83	229
Held for Special Sessions.....	78	26	104
Fined.....	716	481	1197
Sentence Suspended.....	334	295	679
Jail Sentence.....	2	2	4
Acquitted.....	53	13	66
Total Prosecutions Instituted.....	1899	900	2299
Amount of Fines Imposed.....	\$20,128	\$981	\$21,059

SANITARY BUREAU

This bureau deals with matters pertaining to general sanitation.

A police squad, consisting of 48 officers and patrolmen assigned to this Bureau, also serves in an official capacity all other bureaus of the Department. In the Sanitary Bureau they supplement the Sanitary Inspectors and enforce notices and orders, serve summons, warrants, vacate premises and maintain marine quarantine on request of Health Officer of the Port.

Total arrests during year.....	3,015
Persons discharged	45
Suspended sentences	664
Persons fined	2,296
Persons imprisoned	10
Total fines	\$3,801

MOSQUITO PREVENTION AND EXTERMINATION.

The activities of the Mosquito Extermination Division under direction of the Sanitary Engineer comprise the continuation of drainage of salt marsh lands in The Bronx and Queens and the maintenance of ditches installed in Brooklyn, Queens and Richmond, also installation of new ditches in Richmond. Cooperation was had with Government officials with reference to Government reservations and premises adjacent thereto in New Jersey and in Nassau County, New York. The contract for mosquito drainage let in latter part of 1917 for The Bronx and Queens (College Point, Bayside and Douglaston) were continued as soon as weather permitted in 1918 and completed as follows:

College Point contract completed May 25, with a footage of 113,172 feet and installation of 60' of pipe culvert at total cost of \$3,221.91.

Bayside & Douglaston contract completed June 10, with a footage of 126,277 feet and 52 feet box culvert at total cost of \$3,514.99.

Bronx contract completed June 28, with a footage of 826,432 feet and 632 feet of box culvert at total cost of \$20,900.00.

With the completion of contract drainage work of this year the appropriation of 150,000 for use in Brooklyn, Queens and The Bronx has been expended. This appropriation was granted March 10, 1916, and was to expire Dec. 31, 1917, but was later extended to Dec. 31, 1918, as it was found that the work was to cost much less than at first estimated, and as it was so badly needed for work in other Boroughs. Maintenance work was paid for out of this fund up to 1918. A detailed statement of these activities is given by Boroughs.

Borough of Manhattan.

A few complaints were received from citizens in vicinity of Central Park, which were investigated and the trouble located in the Park. Reference was

SANITARY BUREAU

made to the Park Commissioner who assured us that remedial measures would be taken to prevent a recurrence of the nuisance. A number of inspections were made in the Park during the year, and with one exception found conditions fairly good. Found breeding spots in old Duck Pond at 72nd St. & 8th Ave.

Inspections were also made of territory adjacent to all naval supply stations on North and East rivers.

A notable improvement was the fill on site of proposed court house at Centre and Worth Streets where prolific breeding occurred during 1917 and where it was necessary to oil at regular intervals during breeding season.

Borough of the Bronx.

The contract for 750,000 feet of salt marsh drainage exceeded stipulated contract by 76,423 ft. covered by converting extra pipe culvert to footage.

A force of three laborers and one Assistant Foreman from regular force were employed on Maintenance work from August 20 to December 31. A total footage of 514,924 feet was cleaned, and 5,891 feet of new ditches dug, also two culverts were built one 20'x10" and one 16'x10".

Due to recent completion of contract covering entire salt marsh area the small force employed was enabled to cover all sections.

A fill is in progress on a section of salt marsh area by New York, New Haven & Hartford R. R. at 132d St. and Lincoln Ave. at instigation of this Department, as this section was segregated by construction of a railroad spur. Fill in progress west of Westchester and Sound View Aves. Meadow is being filled to grade level.

Fill in progress west of Eastern Boulevard at rear of St. Raymond's Cemetery on Ruh Estate.

Fill in progress at Hunt's Point with ashes over pumped fill to grade.

Section known as Lohbaeur Park was called to attention of the Bronx Office. This is an inland condition and inspections were made by this division and the Bronx Officials and orders issued to abate mosquito nuisance in this section.

A new fill was recently started on old pump fill between Westchester Ave. and Westchester Creek adjacent to Stephen's Coal Yard covering an area of about 10 to 12 acres.

Inspections were made at City Island and breeding places located. Attention of owners was called to these places and nuisance abated by them by means of drains.

Inspections were made at regular intervals at Pelham Bay Park Naval Station, and Columbia Hospital situated at Gunhill Road, and at Fort Schuyler including territory adjacent to each. The salt marsh area in Pelham Bay Park of 450 acres was drained in 1913 at cost of \$6,000, contract let by Park Department with a maintenance clause for six years at \$600 per year. Maintenance contract was renewed in 1918 for a further period of five years at same price.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

All inspections made of inland breeding places were referred to the Bronx office.

One barrel of oil was furnished to Bronx office for distribution in emergency cases.

Continual inspections made of the swamp in Van Cortland Park extending from lake to city line show that nothing has been done to improve existing conditions, which have existed for a number of years and have been referred to Park Commissioners time and again. We have received repeated assurance that the condition would be remedied but nothing has been done.

Borough of Brooklyn.

An average force of six laborers and one Foreman was employed on maintenance work from Aug. 28 to Oct. 16. A total footage of 316,800 linear feet of ditch was cleaned from Spring Creek to Sewage Disposal Plant, foot of Hendrix Street.

Inspections were made in and about Government reservations at 35th to 52nd Sts., and at Fort Hamilton and Naval Base No. 6 at foot of Bay and 17th St.

There is a fill in progress between 92nd St. and the Parkway under direction of the Federal Government, material for which was supplied from Army Base at 59th St. It is approximated that 1,000,000 cubic yards would be required to fill the entire area. A recent inspection shows that fill is progressing rapidly between the Parkway and Cropsey Ave. The Park Department did all it could to keep the ditches open but were handicapped by destruction of the outlet under sand dune on the beach. This matter will be taken up with Park officials in the Spring with view to installing a suitable culvert pending completion of fill now in progress. Eventually this area will be eliminated as a mosquito breeding place. The above only refers to salt marsh area. There are numerous inland breeding places in this section which no doubt the Brooklyn office have taken means to eliminate.

Borough of Queens.

Contracts for 100,000 feet each at College Point and at Bayside and Douglaston, excess footage provided for by pipe was not used.

In maintenance work approximately six laborers and one foreman were employed on Jamaica Bay from Oct. 17 to Dec. 31, from Spring Creek to Aqueduct. 380,000 linear feet of ditches were cleaned. Due to recent completion of work at Flushing, College Point, Bayside and Douglaston, two laborers were able to clean the greater part of these sections with footage as follows:

Flushing—Cleaned	86,520 linear feet of ditch
Flushing—Dug	950 linear feet of ditch
College Point—Cleaned	198,530 linear feet of ditch
Bayside and Douglaston—Cleaned.....	14,000 linear feet of ditch

SANITARY BUREAU

A contract was completed June 14, connecting Gutman Swamp to Salt Meadow. On July 18 the Department commenced ditching the swamp. Ten men were employed from July 24 to August 28 and two men continued to Oct. 2. Total footage dug and cleaned, 52,460 feet. This swamp is an inland area of about 130 acres situated between Jamaica and Flushing.

Considerable time was spent in inspections and cooperation with Government officials at Fort Totten, Bayside and Fort Tilden at Rockway. Inspections were made at regular intervals of the Mill Creek Canal installed by this Department and obstructions removed as required. The condition in Kissena Lake Park remains practically the same as far as marsh area is concerned. The park officials have done nothing to alleviate the mosquito breeding area for which they are responsible despite repeated recommendations and references from this Department. For 11 years fill has been in progress at Corona between L. I. R. R. and Strong's Causeway. They receive at present about five boat loads per day. Was unable to ascertain from men in charge when fill will be completed, progress depending upon material obtainable. This fill has caused us considerable annoyance due to closing of outlets and numerous depressions created in the fill proper wherein mosquitoes breed, thereby obviating to a considerable extent the results obtained from drainage of surrounding territory.

Fill is still in progress in Long Island City, North of Queens Borough Bridge. This work will be expedited by acquisition of material from Street Cleaning Department.

Borough of Richmond.

As this was the first Borough in the city to be drained and as the maintenance force consists of yearly employees the work done is varied in its character, including distribution of oil; installation of pipe or box culverts; maintenance of old ditches and digging new ditches; building sluiceways; cleaning inland swamps and drains; cleaning ditches and drains on highways and cleaning and removal of obstructions from water courses; special details to other Boroughs, etc.

New ditches dug inland, 4,169 feet.

New ditches dug salt marsh, 318,926 feet.

Ditches cleaned inland, 49,764 feet.

Ditches cleaned salt marsh, South Beach to Tottenville, 394,812 feet.

Total truck mileage, 7,037 miles.

Total oil used, 3,211 gallons.

Notices issued on private premises, 71.

Special attention was given to inspections of territory surrounding Fox Hills Receiving Hospital, and the Seaview Hospital, in cooperation with Government officials.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

Force employed by the year—consists of three foreman and one auto engineer, 15 laborers, one foreman being detailed in supervising work in all boroughs on contracts and other work. One laborer detailed as Acting Foreman in all Boroughs as necessity requires.

Our work at Howlands Hook on north shore east and west of Western Ave., has been nullified by obstruction of our drainage ditches by the B. & O. R. R. This Department has taken this matter up with the corporation responsible for this condition, and with the Government and has received numerous promises of immediate relief.

During latter part of the year a contract was let and a dredge put in operation for redigging a creek west of Western Ave. and adjacent to the Soap Works with a view to opening the outlet closed by previous operations. This work was discontinued before completion due to inability to obtain laborers. A recent inspection shows that plans have been modified and work resumed east of Western Ave., and the Engineer in charge states that work will be continued and drainage of this section completed before the breeding season. A culvert has been constructed and pipe placed under fill now in progress for a new Railroad spur. Fill is in progress north of B. & O. R. R. and west of Western Ave. The redigging of Creek in this section must be completed to obtain adequate drainage.

Total Summary—1905 to 1918 Inclusive.

Boroughs of Brooklyn and Queens (Jamaica Bay Section).

Total cost (Jamaica Bay).....	\$90,625.98
Total footage	5,290,047 feet
Acreage approximated (including islands in bay)....	11,654 acres

Borough of Queens (Contracts Included).

Flushing, Corona, Elmhurst, Mill Creek, College Point, Bayside, Douglaston, Little Neck, Maspeth, Woodside and (Gutman Swamp contract let by Borough President's office).

Total cost	\$57,219.66
Total footage	2,299,340 feet
Acreage—approximated	2,096 acres

Borough of The Bronx.

Total cost	\$30,023.00
Total footage	1,977,380 feet
Acreage—approximated	4,000 acres
Total cost (including contracts and maintenance)....	\$180,237.49
Total footage	4,162,667 feet

SANITARY BUREAU

Acreage—approximated	6,250 acres
Maintenance, 1917—Boroughs Brooklyn, Queen and Bronx per diem men	10,000
Maintenance, 1918—Borough Brooklyn, Queens and Bronx per diem men	4,500

Total of all Boroughs.

Cost	\$372,606.13
Footage	13,729,434 feet
Acreage—approximated	25,000 acres
Linear miles of footage.....	2,600 miles
Average cost per acre.....	\$14.90
Average cost per foot.....	.023

In addition it is approximated that \$600,000 has been expended by owners of various sections of Greater New York by filling and drainage with a view to eliminating mosquito breeding.

IMPROVEMENTS TO SEWERAGE SYSTEMS.

Private Sewers.

In the Long Island City section a private sewer from East River Tunnel Construction Plant, on Vernon Ave. and Jane St. is to carry water pumped from East River Tunnel. Previously this water was discharged into vacant lots at rear of tenement houses, causing a nuisance.

Van Dam and Borden Aves., private sewer by order of Department, to dispose of matter from Chemical Co.

Private sewer by order of Department for same purpose at Ribbon Mill at Glendale. This required installation of pumps to discharge all sewage matter into City sewer.

Other private sewers were constructed at:

Eliot Ave., Maspeth.

Grand to Fisk Aves.

Private sewer to dispose of sewage from 14 tenements at Howard St., Long Island City.

Connecting a large portion of private sewers in Maspeth into City Sewage System at Hull Ave.

Extending sewer at Academy St. 100 feet to low-water mark.

Beaver Creek from Beaver St. to Bailey's pond, Jamaica.

The main outlet of Corona trench sewer, was repaired and extended 75 feet to low-water mark.

College Point section at 2nd and 3rd Aves.; outlet of sewage system of factory section was extended 75 feet into deep water.

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At Madison Ave. and Boerum St., Flushing, nuisance of sewage backing up into houses, was temporarily controlled by connecting into New Ingle side sewer system.

New Public Sewers.

There has been laid in Queens, 14 miles of sewers in Corona, Maspeth, Richmond Hill and Elmhurst which permitted abolition of cesspools and privy vaults, and installation of modern plumbing fixtures; 1,184 sewer connections were made.

Dyckman St. Sewage Screening Plant.

The first move in a comprehensive plan to control pollution of waters of New York Harbor was begun in 1916 by construction of a sewage screening plant at foot of Dyckman St., North River. This system is known as "The Riensch Wurl Screen." Dyckman St. sewer is a combined sewer. It sewers an area of 345 acres of which about 17% has been built up in apartment houses. This sewer was originally of brick arch type, 7 feet wide and 5 feet high and discharged into Hudson River at edge of high water line. The accumulation of sludge on the shore line created a public nuisance.

The dry weather flow is diverted from Dyckman St. sewer at a point about 1,100 feet above outlet and carried through a sewer of flatter grade delivering sewage at an elevation sufficiently above high tide to pass it through the treatment plant and a submerged outlet and discharge it by gravity on river bottom about 100 feet from the screen house in more than 40 feet of water. The bottom of river at this point is rock and is swept by strong tidal currents.

Outside the screen house provision is made for guiding the flow from diverting sewer either into a bypass or into the grit chamber from which it passes to the screens. No regulator is employed at upper end of diversion sewer, as any excess quantity reaching the screens will flow over adjustable stop planks into the bypass or back into the storm sewer as soon as a maximum depth is reached on screens. In this way reliable regulation is secured automatically without making use of a device with moving parts, or loss of head.

The grit chamber is of two-story type, and is equipped with Otterson educators for cleaning. It has not been in operation long enough to furnish any reliable data, excepting to demonstrate practicability of the cleaning device, which works under the head of water in local water mains. The diaphragm separating the chamber into two stories serves to maintain a velocity in upper chamber sufficient to carry over all lighter organic matter, even though lower chamber is empty. This would be impossible with a one chamber structure. The present installation of screens has an estimated capacity of about 10,000,000 to 12,000,000 gallons which is one-half of what is expected to be the ultimate need of this outlet, and the plant has been designed to permit future extension. Two screens of the Riensch Wurl disk type, each 14 feet in diameter, set at an angle of 20° have been installed, have an assumed daily capacity of from 5,000,-

SANITARY BUREAU

000 to 6,000,000 gallons each. The screenings are brushed from the disks into galvanized metal cans which rest on a revolving platform; from which they are removed by an electric hoist which operates along a beam upon which the cans may be transported to either the shore or water side of the building for loading into boats or trucks for removal to a suitable dump, reduction plant or incinerator. At present screenings are taken to nearest street-cleaning dump and disposed of with road detritus and garbage.

Each screen is operated by a $2\frac{1}{2}$ h.p. motor. The screen disk plates are manganese bronze. The contractor was required to demonstrate the screen with apertures of various widths, the smallest being $\frac{3}{64}$ inch wide and 2 in. long. Piping for spraying screens with hot water or other cleansing or anti-septic solutions is provided. The influent and effluent channels are provided with sluice gates for controlling flow.

The contractor was required to operate the plant 30 days to demonstrate its mechanical perfection and determine which size of opening was best fitted to local conditions. The smallest opening tried collected 50% more screenings than the $\frac{4}{64}$ in. opening. Larger openings were not tried for obvious reasons. The loss of head on the $\frac{3}{64}$ in. opening, when 2,000,000 gal. of sewage were flowing through about 25% of available area of one screen, varied between 1 and 2 inch. When a less area was used there was a decided increase in loss of head as well as decrease in quantity of screenings removed.

The sewage at this outlet is considerably weaker than typical Manhattan sewage. Samples taken at various times show that it averages about 150 parts per million suspended solids. The screen plates with smaller openings removed from 21 to 28 cu. ft. of drained screenings in eight hours. The estimated flow for corresponding period varied from 520,000 to 1,000,000 gal. While no record other than quantity of screenings removed were kept to determine accurately the percentage of purification, a comparison of screenings removed with the usual suspended solids in sewage shows a removal of from 15 to 40% and an average of 32% which indicates that the expected 20% average removal of suspended solids will be more than accomplished. Often the forenoon rate of removal was double that of the afternoon.

A final decision as to efficiency of the screen will depend upon results obtained during a considerable period of operation, and it would not be without precedent if some materially different and more reliable results were obtained through such operation.

On account of war conditions, the contract price for the plant was more than anticipated. The total cost, including grit chambers and building with deep foundations below tidewater, was \$77,000.

The amount of solid matter removed varies from 2 to 3 cans every eight hours during ordinary flow to 5 cans in greater flow. Each can has a capacity of 300 lbs. so that the daily amount of solids removed varies from 2,700 lbs. to 4,500 lbs.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

ASSEMBLY HALLS.

During the epidemic of Influenza inspections were made of all theatres and moving picture theatres. Particular attention was paid to ventilation and prevention of overcrowding, as the disease was more readily transmitted in places where people gathered together in large numbers and came into close contact. The urgency of the situation demanded radical action and in five moving picture theatres, where insanitary conditions existed, it was necessary to vacate premises by action of the Board.

STABLES.

There are 9,749 stables in which 85,143 horses are kept. These are all under permit. Considerable difficulty was experienced in disposing of accumulated manure in these stables. Strikes, shortage of labor and difficulty in obtaining scows and tugs all contributed toward preventing the movement of this refuse toward points of final disposition. Many stable owners carted their manure to dumps instead of waiting for contractor to do so and in this way helped to minimize the nuisance. Inspectors in districts keep stables under observation at all times. A complete and thorough inspection of every stable in the Borough was made last Spring.

GLANDERS

This Division is notified of existence of this disease and inspections are made of all stables in the vicinity where they occur.

LODGING HOUSES.

There were 164 lodging houses in the City, January 1, 1919, divided as follows:

Manhattan	128	No. of inspections.....	4176
Brooklyn	35	"	830
Bronx	1	"	47

All lodging houses were inspected at least once a month and in addition one inspection during the day and one at night, was made in every lodging house at least once a week, from January 1 to March 16, and from December 15 to December 31.

On account of the war, a large number of soldiers and sailors were located in New York, many on furlough. The War Camp Community Service and other similar societies, started lodging houses for them. As a small charge was exacted in all of these lodging houses, those in charge were notified that it would be necessary to obtain a permit from this Department and certificates from the Fire Department and Bureau of Buildings. So far this has only been done in three cases and applications of the others for permits are still

SANITARY BUREAU

pending. There are ten old type lodging houses still being conducted without permits. The proprietors have failed so far to file certificates from either the Bureau of Buildings or the Fire Department.

Particular attention was paid to the sailors and soldiers lodging houses to prevent overcrowding. Temporary cards were posted in those lodging houses without permits, upon which was stated the number of beds allowed on each floor. All lodging houses under permit are provided with such cards. In all cases where inspectors found more than allotted number of beds on a floor they had them removed at once. Little trouble was experienced in regard to cleanliness and sanitation of these houses.

SPITTING IN PUBLIC PLACES.

Inspectors from this Division arrested 437 persons for this offense and they were fined \$940.00.

SMOKING IN SUBWAY.

1,109 persons were arrested for this offense and they were fined \$1,756.00.

REFUSE DUMPS.

The Department of Street Cleaning conducts garbage and rubbish dumps on the river front, and 12 manure dumps are conducted by private individuals.

Owing to increased price of transportation of material, the contractors, who had agreed to transport garbage and other refuse material from dumps conducted by Department of Street Cleaning, were unable to fulfill their contract and failed in business. The heavy frost early in 1918 and the curtailment and finally the closing of disposal works at Lake Island, Staten Island, resulted in failure to remove material as fast as it accumulated. The Department of Street Cleaning in the emergency, was compelled to store the non-putrescible material on streets at ten different places adjacent to its dumps. As conditions improved this material was gradually removed, but it was July before this was finally accomplished. At garbage dumps the scows were kept at all dumps during the Summer, until they were filled. At times scows were kept for two months at a dump. As a test case, this Department started action against the Receiver of Metropolitan-By-Products Co. for allowing a large amount of garbage to accumulate at dump at foot of Canal Street, North River. Magistrate Appleton in the Municipal Term Court decided that the Receiver could not be held in a criminal action as he was an officer of the United States District Court and action could only be instituted against him in the latter court. Before this could be accomplished, the embargo was raised and garbage being removed in sufficient quantities to prevent a nuisance. During the time this difficulty was experienced inspectors from this Division inspected all garbage dumps daily and other dumps at least once a week. They saw to it that garbage was liberally treated with disinfectant and endeavored in every way to

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

minimize the nuisance that resulted from keeping large quantities of offensive material at the dumps.

Owing to scarcity of labor the manure contractors could not remove manure from stables during the Winter. By securing cooperation between stable owners and manure contractors, this Division arranged to provide permits for stable owners so that they could transport the manure in vehicles owned by them instead of awaiting arrival of contractors. Good results were accomplished in this way and stable owners were encouraged to remove manure themselves. This prevented what would have otherwise been a grave nuisance.

Where manure accumulates at dumps the contractors are compelled by inspectors from this Division to treat the manure in such a way as to prevent fly breeding.

Several garbage incinerators have been installed, and are in operation in Queens and Richmond; the garbage collected from Manhattan, Brooklyn and The Bronx is dumped at sea.

SUMMER RESORTS.

Particular attention has been given summer resorts, camps, and bungalow colonies frequented by large numbers of people during summer months. The disposal of garbage and excreta at these places must be watched carefully to prevent nuisances and conditions dangerous to health. In several colonies along the marshes the can privy system was found inoperative on account of lack of suitable scavenger service. Occupants of the premises were permitted to install privy vaults of tight sides extending below the boggy, muddy top soil, with proper fly screening for contents. These worked well and served to protect water in which occupants of premises bathed.

During the Summer, the City conducts floating baths along the water front and baths where river water is used are conducted for profit by private individuals. In the City floating baths city water is used in the pools, but in private baths water obtained from adjacent river or bay is used. The pools are tight and water is filtered and treated with hypochlorite of lime before it enters the pool. The City also conducts interior baths in which are pools. City water is used in all of these. All private baths are conducted under permits from this Department.

Samples of water are taken from pools of all baths at various times and submitted for bacteriological examination. The river front baths are closely watched and samples are taken from pools at least once a week.

JERSEY FUMES.

For several years residents of Riverside Drive section have been complaining of offensive odors from industrial plants situated along Edgewater and Shadyside, New Jersey. Investigations made proved that these complaints

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were well founded. Irritating acid fumes, tar and other offensive odors were noted, weather conditions being favorable.

An inspection of eight plants was made, as a result of which it was found that offensive odors were escaping in sufficient volume to be recognized along Riverside Drive from the following plants:

Corn Products Co. Sulphurous Acid from acid stack outlet. Offensive odors from dryers.

General Chemical Co. Sulphurous Acid from various processes of manufacture.

Acetic Acid and offensive odors from acetic acid still residues.

Valvoline Oil Co. Offensive odors from retorts for revivifying animal charcoal.

Barrett Mfg. Co. Tar odors during process of blowing off stills, to the storage tanks.

Bulls Ferry Co. Offensive odors due to manufacture of Sulphur brown and black.

Work is in progress, correcting these nuisances, and at present time, but two sources of nuisance exist:

1. Offensive odors from dryers of Corn Products Co.
Nuisance of acid fumes has been abated.
2. Offensive odors from residue of acetic stills of General Chemical Co.
Other nuisance from this plant has been abated.

Fumes, Dust, etc.—This bureau has carried on intensive surveys in factories, etc., where employees are subject to any fumes, dust, fibre, gases, hazardous or unsafe conditions, inadequate or excessive artificial illumination, and other insanitary conditions. Nuisances have been abated in fur dressing and dyeing establishments, dye works, hat factories, storage battery plants, smelting works, printing establishments, woodworking plants, stone grinding, polishing, buffing, lacquering, etc.

An educational campaign among owners of these plants is carried on, and an effort made to have them comply gradually with requirements in worst conditions, leaving smaller dangers to be taken care of as soon as value of this work is shown to proprietors.

ANTHRAX.

Several cases of Anthrax were reported to the department. In two cases occurring in a brush factory in Brooklyn, samples of bristles taken from this factory were forwarded to the research laboratory for examination, and found to be infected. Other cases were contracted from shaving brushes. Shaving brushes were purchased in various stores and it was found that only the cheaper grades were infected, and the infected bristles consisted of horse hair imported from Russia, Japan and China.

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In view of possibility that imported bristles used by the trade may be infected, the Commissioner directed dealers to submit their stock to sterilization by the Department.

DRINKING WATER INSPECTION.

The Sanitary Expert of this bureau inspects the watershed supplying water for this city and reports for correction any condition liable to contaminate this water. He also inspects all cases of Typhoid Fever occurring in Croton and Catskill watersheds, the epidemiology of same, and recommends to the Dept. of Water, Gas and Electricity, methods for prevention of infection from same, and pollution of water supply. During 1918, there were 5 cases of Typhoid in Croton watershed and 6 in Catskill watersheds.

The outlying sections of boroughs are not provided with city water. This necessitates use of well-water. The surrounding sanitary conditions are inspected and samples taken of water for examination and analysis. It is a settled policy to urge installation of city mains wherever possible, as maintenance of the purity of well-water is fraught with too many risks in a growing community.

Systemic inspections are made of water boats supplying drinking water to steamers in the harbor, and samples taken from them for analysis and examination. Where necessary the owners of boats are compelled to clean and reline tanks and take other necessary precautions to safeguard water delivered.

By agreement with the Bureau of Buildings all connections of city water lines to well-water pipes in new buildings is prohibited. This action was taken in view of prohibition against this practice in department's regulations. It was deemed just to builders to notify them of this restriction as no well-water can be used in the city without a permit from this department, and regulations governing granting of these permits forbid such connection.

The same policy has been adopted at our request by Board of Estimate Engineers in granting franchises to run river water lines from territorial waters of the city to buildings in the city.

A sample of water is taken from the various reservoirs in New York City, once a month for bacteriological examination—other samples were taken from taps at various localities for same purposes. The use of well water for domestic and other purposes is under permit from the department.

COMFORT STATIONS.

Periodic inspections are made of public comfort stations. At request of Park Department this department prepared a placard requesting the general public to properly care for these toilets and warning of consequence of negligence of criminality. This division is charged with responsibility of keeping these stations under observation for purpose of enforcing cleanliness and necessary repairs.

New subway stations have been constructed, all equipped with comfort

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stations. In all railroad terminals, ferry houses, elevated railroad and subway stations, and in a few public squares, there are comfort stations that afford water closet and washing facilities.

The comfort stations in subways are the cause of more trouble than any others. They are located below sewer grade, sewage from them has to be pumped up to sewer and the mechanism of ejectors used for this purpose is delicate and easily displaced. Failure to operate results in sewage flowing on to stations and tracks. These subway comfort stations require constant supervision and care, and are more frequently inspected than others.

REMOVAL OF DEAD ANIMALS AND REFUSE MATERIAL.

There are about 3,000 permits in force, covering vehicles used to transport refuse material. Ashes, garbage, swill, grease, fat, bones, sweepings and freshly slaughtered offal are transported under permit from this Department. Inspectors supervise transportation of refuse material to extent of inspecting all vehicles at time application is made for permit and viewing the vehicles as they pass through city streets in transit, noting and correcting violations of regulations. Many permits issued for this purpose are not long in force, as owners of vehicles in some cases change rapidly, and it is necessary to follow up these vehicles often, to inspect them as to equipment and to determine if they are still in use by owner specified in the permit.

Drivers of refuse material vehicles were arrested by inspectors from this Division and fined in court, for violating rules and regulations of this Department referring to transportation of refuse material.

All rendering plants operate under permits from this Division. All others, in addition to rendering inedible products also render edible fats and have permits issued by Division of Food and Drug Inspection. The plants under permits from this Division are inspected regularly and every known precaution is observed to prevent escape of offensive odors from them.

The number of dead animals removed from streets and quantity of offal, etc., removed from markets and slaughter houses was as follows:

CARCASSES REMOVED

	MAN- HATTAN	THE BRONX	BROOK- LYN	QUEENS	RICH- MOND	CITY
Large Animals:						
Horses.....	5,065	549	3,463	761	387	10,225
Mules.....			2	2	4	8
Donkeys.....		1				1
Colts.....	1		3			4
Ponies.....	2		1	1	1	5
Cattle.....	319	16	47	125	16	523
Other large animals.....	3					3
TOTAL.....	5,390	566	3,516	889	408	10,769

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	MAN- HATTAN	THE BRONX	BROOK- LYN	QUEENS	RICH- MOND	CITY
Small Animals:						
Calves.....	851	5	14	1	871
Sheep.....	335	.....	.....	.....	1	336
Goats.....	10	.....	4	.....	6	20
Hogs.....	40	.....	36	16	1	93
Pigs.....	.....	.....	.....	.....	.....	.....
Cats from street.....	13,931	10,047	7,120	1,201	718	33,017
Dogs from street.....	5,313	4,441	7,336	1,262	965	19,317
Cats from shelter.....	176,180	.....	70,709	.....	986	247,975
Dogs from shelter.....	192,664	.....	12,981	.....	747	206,392
TOTAL.....	389,324	14,488	98,191	2,493	3,425	507,921
TOTAL OF ALL ANIMALS.....	394,714	15,054	101,707	3,382	3,833	518,690

MEAT, OFFAL, ETC., REMOVED

	MAN- HATTAN	THE BRONX	BROOK- LYN	QUEENS	RICH- MOND	CITY
Pounds of Meat.....	23,500	.....	.....	.....	.....	23,500
Pounds of Poultry.....	253,200	.....	.....	.....	.....	253,200
Pounds of Rabbits.....	3,684	.....	.....	.....	.....	3,684
Pounds of Fish.....	677,614	5,600	162,809	.....	.....	846,014
Pounds of Offal.....	40,534	7,600	296,743	.....	.....	344,877
TOTAL.....	998,532	13,200	459,543	.....	.....	1,471,275
Cubic yards of night soil removed.....	.....	.....	105	213½	.....	318½

GUARDING AGAINST RATS.

Inspections were made of more than 1,000 vessels from quarantined ports to compel maintenance of guards to prevent rats from ships getting to docks. Requirements of permit from the department for docking all such boats was insisted upon. In view of danger of importation of rates from European countries a strict supervision is necessary.

Rats are trapped, the bodies are sent to laboratory for bacteriological examination for presence of Bubonic and other bacteria.

HOUSE HEAT REGULATIONS.

Sections 225 of Sanitary Code, requiring that a "minimum temperature of 68 degrees Fahrenheit" be maintained in any "building or portion thereof, occupied as a home or place of residence of one or more persons, or as a business establishment where one or more persons are employed," became effective October 21. Publication of the fact in daily papers resulted in an unusually large number of complaints being filed at once. To meet the emergency it was neces-

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sary to transfer inspectors to residential sections, from which the majority of complaints emanated.

In handling these complaints the following system was adopted. Upon receipt of a complaint this office communicated with owner of building by phone at once. He was informed of new requirements and warned to comply at once. Complainant was then informed of action taken, the complaint listed and investigated by District Inspector. In all cases where violations were found, a reasonable time was given owners to make repairs if necessary and if 68 degrees Fahrenheit was not maintained owner was summoned to court.

SMOKE NUISANCE.

All premises from which dense smoke is liable to discharge are kept under observation. 119 notices were issued requiring "That the discharge of dense smoke from premises be discontinued."

In comparison with other localities this nuisance is very light. At times, when good quality hard coal is hard to obtain, some difficulty is experienced with establishments that consume large quantities of fuel. Early in the year, on account of stringency of fuel the dense smoke nuisance was more prevalent. In connection with distribution of fuel during that period this Division helped in its conservation, by making inspections at night to ascertain if order of the Fuel Administrator prohibiting excessive show lighting at night was being complied with. The inspectors found many violations, all of which they abated by personal effort. An inspector was loaned to the Commissioner of Markets to assist in distribution of fuel.

BARBER SHOPS.

District inspectors inspect all barber shops in their districts, the number of inspections depending upon the character of shop to a great extent; the lower price ones, in which sanitary precautions are more necessary on account of a large proportion of customers not being insistent upon use of sterilized implements, are kept under stricter observation, and rules and regulations of this Department are enforced.

HORSESHOEING SHOPS.

All horseshoeing shops are under permit. They are inspected from time to time and rules and regulations are enforced.

SCHOOLS.

Two investigations were made of all public schools in the various boroughs. The first was with a view to rectifying all insanitary conditions resulting after the heavy frost during Winter of 1918. Defects were found, attention of

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officials in Department of Education was drawn to them and all insanitary conditions were corrected. The second was made with a view of determining if drinking water appliances used in the schools were suitable and of such construction as to prevent touching outlet of the apparatus by mouths of those drinking from them. In the majority of cases it was found that drinking appliances were not suitable.

All private schools are under permit from this Division in the Boroughs. They are inspected regularly and rules of this Department are enforced.

VACANT LOTS.

Vacant lots in all Boroughs are the source of considerable nuisance. They are used as a dumping ground by residents of adjacent buildings and in built up sections where buildings have been razed it requires continuous vigilance of the inspector to keep the lots free from offensive refuse.

During the year, as a result of condemnation of land along route of new Seventh Avenue Subway, many small parcels of land were left skirting the subway, which were not used for subway purposes but which were taken over with portions of the land condemned for subway uses. These small parcels were used extensively by adjacent tenants to dump ashes and garbage.

On a lot in West 25th Street, steam ashes were used to fill for a depth of about 10' during the winter when it was convenient to use the lot instead of driving to river front dumps. About four months later the steam ashes underneath became ignited, and sulphurous fumes entered surrounding factories. An attempt was made to extinguish the fire with water, but without success. It was finally necessary to turn over all ashes in the lot, beginning by digging a ditch in the rear and to turn over and thoroughly saturate with water all material that had been dumped.

Vacant lots owned by individuals who live out of town and have no city representative are hard to keep in good condition. The only method that can be used to communicate with owner is by issuance of a Board Order. This takes time that could be used to better advantage. It is recommended that steps be taken to either provide laborers who could be sent to clean these lots at once, or to compel owners to register the name of a New York representative, who will have power to comply with regulations of this Department.

PRATIQUES.

On November 1 the issuance of permits for boats to discharge cargoes was charged to this Division. These permits are issued upon presentation of pratiques from the Health Officer of the Port. From November 1 to December 31, 226 permits were issued.

PENAL INSTITUTIONS.

A survey of Harts Island was made in May and June. Potters Field, as the free city burial ground is known, is located on this island. It was found

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that bodies were not being buried deep enough, and offensive odors from the burial ground pervaded the island. The material used in boxes containing bodies was of poor quality and many were broken in transportation from the Morgue to Harts Island. All burial trenches were 18'x45'x5' deep, and contained 150 bodies in three tiers. Through the efforts of this Division this was changed so that trenches were dug 2' deeper and the earth mounded up 2' above the trench. This abated the nuisance caused by escape of offensive odors.

It was found that all sewer outlets were broken and disconnected and the sewage from same discharged on the beach surrounding the island. Numerous insanitary conditions were also found throughout the various buildings, and proper corrections were made.

PUBLIC CONVEYANCES.

Although the Public Service Commission has jurisdiction over all subways, elevated and surface cars, it sometimes becomes necessary for inspectors from this Division to respond to complaints regarding heating and ventilation of these cars.

At request of the Mayor, all employees were requested to report for one week in February, upon the following conditions of cars used by them: Delays in transit and overcrowding of cars, giving number of car and time of leaving certain points and arrival at destination. The object was to gather statistics regarding operation of all transit facilities with a view to correcting faults.

Several times during the year inspectors reported upon ventilation of cars.

DIVISION OF INSTITUTIONAL INSPECTION

This Division was formed on January 1, 1916, by amalgamation of the Divisions of Institution Inspection attached to Bureaus of Child Hygiene and Preventable Diseases. From that time it has been in the Bureau of General Administration, directly under jurisdiction of the Deputy Commissioner.

The Division exercises two sets of functions, each performed by a separate and distinct group of inspectors. One group is known as Institutional Diagnosticians. Their functions include the diagnosis and sanitary supervision of communicable diseases in institutions; periodic investigation of sanitary conditions of all non-subsidized institutions; physical examination and re-examination, twice a year, of all children in child caring institutions, receiving no City support; administration of sera, toxins, and vaccines; application of the Schick test; collection of cultures, smears and blood for laboratory examination; medical examination of food handlers in institutions; investigation, prior to issuance of a permit, of proposed day nurseries, child caring institutions, private hospitals, sanatoria, and laboratories offering facilities for diagnosis of communicable diseases; verification of monthly medical reports of child caring institutions not receiving City money (required under State Public Health Law); diagnosis of illness among Health Department employees in institutions, and performance of field work for the Divisions of Epidemiology, Venereal Diseases, Tuberculosis, Industrial Hygiene, Midwives and Foundlings, insofar as their work concerns institutions; and for the Chief Diagnostician.

The second group confines its activities to institutions subsidized by the City located throughout New York and New Jersey, the majority, however, are within City limits. The inspectors assigned to these institutions make regularly sanitary inspections of grounds and buildings, and semi-annually, a complete physical examination and re-examination of all inmates irrespective of age. Ordinarily no diagnosis of communicable disease is undertaken by them. They do, however, administer sera, toxins, etc.

The City is divided into districts nearly identical with those of the Bureau of Preventable Diseases, and each inspector is responsible for all Health Department activities in institutions in his district. Outside of the City, each inspector has supervision of an equal number of subsidized institutions.

The number and census of institutions supervised, together with their bed capacity, are as follows:

Hospitals	130	42,558
Dispensaries	107	no beds
Private Sanatoria.....	88	1,350
Homes for Children.....	157	27,754
Homes for Adults.....	169	5,132
Homes for Incurables.....	15	1,229
Homes for Aged.....	44	4,772

DIVISION OF INSTITUTIONAL INSPECTION

Day Nurseries.....	103	7,252
Reformatories and Prisons.....	26	6,504
Diagnostic Laboratories.....	141	no beds
	980	96,551

One of the most important new functions assumed by this Division during the year was that of regularly making, in all institutions under jurisdiction of the Department of Correction, sanitary inspections, and physical examination of inmates, together with re-examination at stated intervals, of those found to have physical defects. This work was volunteered to the Commissioner of Corrections, and the suggestion met with his hearty approval. Those institutions within City limits are taken care of by Manhattan Inspectors, and New Hampton Farms is regularly visited by an out-of-town inspector.

In addition to this and routine work of the Division, we were called upon to perform the following work not ordinarily under our jurisdiction, because of inadequate forces of inspectors in other Bureaus and Divisions of the Department, due to illness and vacancies caused by the war.

District diagnosis work in Brooklyn and The Bronx.

Certain Sunday night assignments in Bureau of Records.

Investigation of cases of gas poisoning.

The Division had assigned to it by the Commissioner, a very prominent and important function during the Fall, by reason of the influenza epidemic. This related:

To hospitalization of patients, and until a special force could be trained and assigned, inspectors covered the Commissioner's office continuously from 7 p. m. to 7 a. m., including Saturdays, Sundays and Holidays.

To the large problem of caring for children who had been exposed to Influenza, and who were left fatherless or motherless or without anyone to care for them. To provide for these children, we converted six of the day nurseries into temporary child caring institutions. The children ordinarily in attendance at them were taken charge of by neighboring day nurseries. The bed space of those so taken was found inadequate to care for all of the children, but we were fortunate in having loaned to us the Seaside Hospital at Coney Island, owned and controlled by the Children's Aid Society of Brooklyn, but which is operated only during summer months.

The following agencies coöperated to extent of their ability, in carrying out this work:

Haven Day Nursery
Brightside Day Nursery
Kips Bay Day Nursery

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Emanuel Sisterhood Day Nursery
 Manhattanville Day Nursery
 East Side Settlement Day Nursery
 Seaside Hospital, Coney Island.

Approximately 500 children received temporary care in these institutions until recovery of parents from influenza, or in event of death, their permanent placement in appropriate institutions.

After making physical examinations in institutions, and finding defects, there has always been great difficulty in getting consents of parents to have the defects found corrected. This Division suggested to the Department of Charities, that at time of commitment of child, the parent be required to sign a release allowing authorities in the institution to correct defects found.

A form was suggested and adopted, and this difficulty in having physical defects corrected, has been removed.

PRIMARY EXAMINATIONS—1918

	CHILDREN EXAMINED	NORMAL	DE- FECTIVE	TOTAL	NORMAL	DE- FECTIVE
Manhattan.....	5,702	1,428	4,274	7,276	25.1	74.9
Bronx.....	8,451	2,961	5,490	8,960	35.1	64.9
Brooklyn.....	8,675	4,589	4,086	5,002	52.9	47.1
Richmond.....	3,406	1,656	1,750	2,654	48.8	51.1
Out-of-Town.....	13,640	5,471	8,169	11,826	40.1	59.9
TOTALS.....	39,874	16,105	23,769	35,718	40.3	59.7

RE-EXAMINATIONS, 1918.

BOROUGH.	Children Examined.				Teeth Only.			
		O. K.				O. K.		
Manhattan.....	4,075	2,166	1,578	331	533	360	176	17
Bronx.....	3,181	2,322	802	57	1,003	657	534	22
Brooklyn.....	2,666	1,654	809	203	698	317	270	111
Richmond.....	1,658	1,018	534	106	291	247	65	9
Out-of-Town....	6,535	895	5,178	462	757	335	413	9
Total.....	18,115	8,055	8,901	1,159	3,302	1,876	1,258	168

BOROUGH.	Teeth in Combination.				Total Defects.			
		O. K.				O. K.		
Manhattan ...	799	612	176	11	7,299	4,306	1,835	1,108
Bronx	824	511	309	4	5,464	4,077	1,252	135
Brooklyn ...	487	309	69	89	4,604	2,954	1,110	540
Richmond ...	280	227	29	4	2,523	1,743	604	170
Out-of-Town .	1,097	522	544	31	10,358	2,074	6,852	1,432
Total.....	3,347	2,181	1,127	139	30,248	15,134	11,703	3,891

BUREAU OF PREVENTABLE DISEASES

The year was critical for this Bureau. Its staff was depleted by absence of many employees on military duty, besides a number of vacancies remained unfilled for a variety of reasons; and lack of determination as to the policy of administrative organization as between bureau and borough control—all entered into the situation.

The epidemic of influenza and pneumonia came upon us with an overwhelming force, at a time when we were already sorely taxed. Several of the Bureaus of the Department had a direct share in the efforts made to control it. This Bureau had to assume the largest burden in planning, organizing, and putting into effect a campaign for prevention, control and relief. With its Divisions of Infectious Diseases and of Epidemiology virtually non-existent, the nurses of the Bureau, as well as a number of its medical and clerical staff, deserve special commendation because of the meritorious and unselfish part they played during the trying ordeal when the epidemic was at its height. The nurses and others of the bureau staff labored untiringly on Sundays, holidays, and evenings, without added recompense, they were always ready to respond to the innumerable calls made upon them.

Two new undertakings mark the work of 1918. One is the establishment of two preventoria on our Ferryboat Day Camps; the other is the elaborate program for control of the spread of venereal disease.

Typhoid Fever. It has been virtually a tradition that the typhoid fever rate remains a reliable index of the attitude of communities toward sanitation and public health. If it were possible to bring home to the citizens of New York City in a clear and intelligible way a realization of how much safer it is to live here as compared with many other cities and as compared with conditions twenty years ago in this City, they might more readily appreciate how their sympathy and support of public health work counts, that public health is purchaseable, and that within certain reasonable limitations, a community can determine just how safe life can be made for all persons in that community. During 1898, when the consolidation of the greater city occurred, the death rate from typhoid fever was 21 per 100,000 persons. The population was 3,250,000, and the deaths reported were 676; the deaths from typhoid during ensuing ten years hovered between 676 and 740. Even in 1902, 21 out of every 100,000 persons in New York City died from typhoid fever. During 1918 we had only 196 deaths from typhoid, or three per 100,000 persons, as contrasted with the 21 in 1898. Over 2,200 cases of typhoid were reported in 1898 and the number of cases reported during intervening years varied in proportion to increase in population, until 1907, when 4,426 cases were reported. Since 1907 we have had a very signal reduction in incidence of typhoid fever in this city, so that in 1918 we had a total of 1,238 cases, although population had increased to nearly six million.

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If the same mortality rate which prevailed in 1898 had continued to date, instead of 196 deaths from typhoid, we would have had 1,246 deaths last year. These achievements are not the result of accident or good fortune, but direct consequences of the application of intelligent and expert effort in sanitary science. The discovery of cases of typhoid fever, by means of laboratory facilities extended to private physicians and to others, supervision and isolation of patients, removal of the sick to hospital when home conditions do not assure safety to other members of the family, exclusion of contaminated food (principally contaminated milk, vegetables and oysters), medical examination of food handlers, and exclusion from food-handling of those who may be carriers, the campaign to prevent fly-breeding, country inspection of milk, and last, but not least, protection by chemical agents and by continuous supervision of the water supply of this city,—these are the chief measures by which several Bureaus of the Department have co-operated with this Bureau to rob typhoid fever of the terrors which it has inspired in communities where public health work is backward and deficient. Year by year a very steady and distinct reduction in cases and deaths from typhoid has thus been accomplished. During 1917, for instance, 1,442 cases were reported as against 1,238 in 1918. During 1917, there were 229 deaths from typhoid as against 196 during 1918.

We have noted with concern that private physicians have apparently not utilized the laboratory facilities for diagnosis of typhoid as frequently as they should, particularly our facilities for the Widal test. Past experience has shown a frequent resort to this test in all suspicious cases to be essential for prompt discovery of typhoid. The record of our activities in connection with control and supervision of typhoid fever shows that the number of immunizations as compared with 1917 has been considerably diminished. This is of particular significance as related to persons who have been living in close contact with typhoid patients, and who have failed to accept immunization in spite of our efforts at persuasion and education. Whereas 3,662 exposed persons refused typhoid immunization in 1917, in 1918 4,449 persons refused this protective measure.

In the fall of 1917 there were prepared placards in which the virtues of typhoid immunization were set forth and extolled. These were exhibited in cars of all public carriers and on station platforms. Notwithstanding this modern method of advertising, the number of immunizations during 1918 were much fewer than during 1917. It would seem we have failed to secure the co-operation of physicians in creating confidence in this measure.

Both during 1918 and 1917, over 60% of the typhoid fever cases reported were treated in general hospitals. In a relatively large proportion of such cases, supervision of the case for the purpose of enforcing sanitary precautions, etc., does not seem to have been as rigidly exercised as in cases treated at home. This should be remedied at once. The effect of such laxity in supervision of hospital cases were manifested by a study which this bureau conducted during the year

BUREAU OF PREVENTABLE DISEASES

which showed that over 200 cases of typhoid cared for in general hospitals during last six months of 1918 had been discharged without referring the record of such patients to this Department prior to discharge so that we might exercise our proper function in making certain that these patients had in accordance with our regulations been made the subject of laboratory examination to determine presence or absence of typhoid bacilli in the intestinal tract. These typhoid cases discharged from hospitals without proper safeguard, constituted a group among whom there may have been a number of undiscovered carriers who were a menace to those with whom they came in contact. A more centralized control of typhoid fever cases in homes and hospitals lodged in this Bureau would seem essential to strengthen a weak point in our defensive armor. Of the 1,238 cases—963 gave a history drinking bottled or loose milk prior to illness. Of the 963, 37 per cent had used loose milk dipped from cans at time of purchase, 12 per cent had used both loose and bottled milk; and 50 per cent bottled milk only. While relationship between use of loose milk and occurrence of typhoid has not been definitely established, it is suggestive of a possible source of danger and would seem to argue in favor of having sale of loose milk forbidden in this City except for cooking purposes. In 61 cases, typhoid infection was very definitely traced to use of loose milk sold from cans. In several of the larger cities, the sale of loose milk is prohibited.

OCCURRENCE OF TYPHOID FEVER IN PERSONS PREVIOUSLY IMMUNIZED.

Twelve cases, or less than 1 per cent of total number reported had received immunizing doses of typhoid vaccine; all but two of these had received a full course of three injections. Seven had received their injections at hands of military medical officers. The two incomplete courses of immunizing injections occurred among these military men; one had received two injections, the other had received but one. One of the persons injected who subsequently came down with typhoid fever received his immunization out of town. The other four received injections of typhoid vaccine prepared in our laboratory. Of the twelve immunized persons who were reported to have developed typhoid, four in the military group and one in civil group had vague clinical manifestations which were diagnosed as typhoid solely or largely because of Widal test. Manifestly a positive Widal test in persons previously immunized is of little or no value for diagnostic purposes; these five cases were therefore not clear cut cases of typhoid, and the diagnosis must be accepted with reservations.

Of the five non-military cases which had previously received immunizing injections, three were nurses, one an interne, and one an inmate of an institution who was brought in close contact with the sick. So far as is known, only three nurses and one interne who had previously been immunized and who were in contact with the 781 typhoid patients in the general hospitals during 1918, contracted the disease. By way of contrast ten nurses who had not been immunized

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developed typhoid during the year, three of these died. In addition, four attendants and orderlies developed the disease; all of these recovered, making fourteen non-immunized persons in hospitals service who contracted typhoid as against four immunized hospital workers.

Carriers.

The problem of supervising typhoid carriers requires constant watchfulness and study. At present we have a record of 70 chronic carriers, three of whom are detained forcibly in the Department hospitals, the others being permitted to stay at home under constant supervision. The examination of foodhandlers for discovery of typhoid carriers is a most important activity. As the bulk of examination of foodhandlers has in the past devolved upon private physicians, it is most essential that it be brought home to them with emphasis, that they owe a duty to the community to be alert to single out foodhandlers who give a history of having had typhoid fever, for examination of their blood and stools.

Age and Sex With Relation to the Prevalence of Typhoid Fever.

Table No. 2 presents in statistical form a number of facts which if properly interpreted by health officers, private physicians and parents, would constitute a strong and powerful argument for typhoid immunization. The age groups under 45 have been divided into quinquennial periods. A surprisingly large number of cases of typhoid (one-third of all cases) occurred in children under 15. The largest number reported in any one of these age groups occurred in children from 10 to 14 years, namely 15½ per cent. One-eighth of the cases occurred in children from 5 to 9 years. The second largest age group affected was from 15 to 19 years, and the third from 20 to 24 years.

The highest number of deaths took place in the age group 25 to 29 years, the next highest in those who were 20 to 24. About one-fifth of all deaths recorded from this disease during 1918 occurred in children under 15 years. While only 8 per cent of cases under 5 years terminated fatally, and only 16½ per cent of cases from 5 to 9 years, in older age groups there is a gradual but progressive increase in percentage of fatal terminations. In other words, while nearly three-quarters of all cases occur in persons under 30 years the likelihood of fatal termination seems to increase with higher age groups.

Diphtheria.

While a striking reduction in mortality from diphtheria has been effected since the introduction of diphtheria antitoxin in 1894, we seem in the last five years to have reached a point beyond which our present means of combating and diminishing the prevalence of mortality from this disease have not been successful, and a study of the number of deaths which still occur annually must challenge further effort in reduction of both prevalence and mortality from this disease.

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Diphtheria is so peculiarly identified with child life that we do not derive an adequate idea of its ravages, from a statistical statement based on number of cases and of deaths per thousand of general population. We would better realize the significance if statistical statements were based on number of cases per thousand of children under 10 or even under 15 years. Our facilities for conducting studies along this line have thus far been deficient.

In 1894 the death rate from diphtheria was approximately 15 per 10,000 population. Four years later when the five boroughs were consolidated into the greater city, the mortality was 5.4 per 10,000 population, a reduction of two-thirds. In 1917, the deaths were 2 per 10,000. In 1918, they were 2.1. If the death rate from diphtheria antitoxin in 1898 were to have continued to the present day, with a population estimated at 5,872,143, we would have had 3,170 deaths in 1918 instead of 1,244. In other words, when the value of diphtheria antitoxin was vindicated and gained approval of medical practitioners, and when as a companion, the diagnostic aid furnished by our laboratory in examination of cultures, measure was made available to all practitioners, we initiated a propaganda which brought about a reduction not only in the percentage of cases which terminated fatally but in mortality rate as well. As stated, during the last ten years, we seem to have reached an irreducible minimum in the prevalence and mortality rate of diphtheria. However, the researches of Schick, the work of our research laboratory and others have demonstrated that we possess the means to reduce this disease to relatively negligible proportions. Dr. Parq has in a number of reports given first-hand testimony as to apparent assured benefits to be derived from widespread application among children of earlier age groups of the Schick test, together with use of the newer method of active immunization for protection of those children whom the Schick test demonstrates to be susceptible to diphtheria. When, further, one considers that during five years we have had an average of 14,060 reported cases of diphtheria per year, and that of these a relatively large number have suffered from serious cardiac or other organic sequelae, it must serve as a powerful argument to spur private physicians and parents to combine with this Department in the campaign recently begun to reduce prevalence of this disease. The failure of medical schools to give instruction in significance, uses and technique of the Schick test and of active immunization against diphtheria, in face of facts proven in the last few years, will, if continued, constitute a serious indictment of those responsible for preparation of the college curriculum.

Table 3 presents comparative statistics for major infectious diseases for 1917 and 1918. The data relating to diphtheria shows the number of cases of diphtheria reported in the Bronx is relatively much larger than in other boroughs. This may be due to the rapid increase in child population of the Bronx. It would require study over an extended period to determine this. If the mortality rate from infectious diseases of childhood were calculated

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per thousand children under fifteen years, it might be found that the death rate among most susceptible age groups from diphtheria in any one borough would be larger or smaller than indicated in table 5 in accordance with the proportion of child population in any borough.

Measles

After the lapse of a number of years during which measles, while nominally a reportable disease was virtually ignored by the Department, we resumed on May 6th the practice of having our nurses visit all reported cases, after considerable debate and controversy as to the virtue of such method of attack. Measles may properly be regarded in the foremost of the respiratory diseases with which the Department comes in contact. Since a relatively large number of deaths among children are due to pneumonia complicating measles, and since measles predisposes to development of tuberculosis, and since the number of cases reported annually is far greater than any other communicable disease, the Department cannot ignore the opportunity to establish intimate contact with the thousands of families in which cases of measles occur, in order to educate the largest possible number of persons through direct and personal contact in methods for control and prevention of the spread of respiratory diseases and measles. The spoken word transmitted by a sympathetic tactful nurse, alert to the significance of her place in the educational scheme of health work is of infinitely greater value than much printed matter. Our health literature has value largely as a sequel to the verbal instruction of doctors and nurses. This year, insofar as incidence of measles is concerned, we have been presented with a peculiar paradox. Whereas, normally with opening of the school session, the acute infectious diseases almost immediately begin to increase in number we find that measles, which is the best index of prevalence of various acute infectious disease among school children, diminished in frequency, contrary to previous experience, so that in December, we had 76 cases of measles reported whereas, the average for December during preceding five years had been 1227 cases. At the present time (April, 1919) this remarkable decrease has continued. During the epidemic of acute anterior poliomyelitis, we had a similar experience in connection with prevalence of acute infectious diseases. It seems that with advent of an epidemic of any of the infectious diseases, there is regularly observed a compensatory decline in prevalence of commoner infectious diseases. This decline in prevalence of acute infectious diseases during the period of epidemic was not particularly noticeable with any of the infectious diseases but measles, which seemed to stand out conspicuously. The number of cases of measles reported during the first half of the year was very much greater than the average for five preceding years and although the second half of 1918 brought relatively few cases, the number of cases per thousand reported during 1918 was 488 per 100,000 as against 478 for 1917. The number of deaths was 13 per 100,000 as against 10 during 1917. The Borough of Brooklyn

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seemed to suffer particularly. Whereas, the average cases reported during five years in Brooklyn has been 8,814 per annum and in Manhattan 12,546 per annum, during 1918, Brooklyn had 11,559 cases as opposed to 9,869 in Manhattan.

Whooping Cough

Although the number of cases reported were fewer by 39 than during 1917, and about 300 less than the average for five years, the deaths from this disease showed a very considerable increase, namely, 664 as against 489 during 1917. This is the largest number of deaths from this cause recorded since 1898. Table No. 4 shows that the number of deaths from whooping cough was exactly as great as deaths from scarlet fever, typhoid fever, epidemic cerebro-spinal meningitis and acute anterior poliomyelitis combined. Excluding tuberculosis, it ranked third among infectious diseases, in the order of their respective mortality rates. The Boroughs of Queens and Richmond, which closely approximate a rural community, have higher mortality rates per thousand from whooping cough than other boroughs.

The value of pertussis vaccine which was given a fairly exhaustive trial, has not been vindicated by experience. When administered at beginning of the disease, it seems at times to lessen severity of the attack. As a preventive of whooping cough, the vaccine has also failed to justify itself.

During 1918, the number of deaths from this disease increased from 187 in 1917, to 262. The number of cases recorded shows a rather considerable increase, namely, 476 as against 322 during 1917. There were 8 cases per 100,000 population in 1918, as against 5 in 1917. Brooklyn with an increase of 80 cases over 1917 showed a relatively larger increase in the prevalence of this disease than any other boroughs.

Chart No. 9 shows the age groups of reported cases of cerebro-spinal meningitis. 44% of all cases occurred under five years of age, and the largest number of cases in this age group were found in children under one year. In older age groups, the largest number of cases occurred from five to nine years, and from twenty to twenty-four years.

The large preponderance of deaths was among males in the earlier age groups. In older age groups males are more frequently affected with this disease.

The percentage of deaths among children from five to nine years, while not as great as for children under one, and between one and two years, was nearly as great as in all children from two to five years, and greater than the percentage of deaths in any of older age groups.

Scarlet Fever

While in 1917, we had approximately 1300 cases less than the average for preceding five years, in 1918, there was an even more marked reduction.

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The total cases reported was 4,460, a reduction of nearly 3,000 cases as compared with average number during preceding five years.

The number of deaths from this disease, however, while 50 less than average for preceding five years was 50 in excess of 1917. Queens had a higher mortality rate per thousand than other Boroughs from scarlet fever, as also from diphtheria, whooping cough and acute anterior poliomyelitis.

Poliomyelitis

The undue prevalence of acute anterior poliomyelitis in 1916, and of influenza and pneumonia in 1918, destroyed the value of average annual incidence during the five year period for purposes of comparison. The incidence of acute anterior poliomyelitis was about equal to 1917, while the number of deaths which was 53 in 1917, was but 29 in 1918.

Smallpox

There were 21 cases of smallpox during 1918 as against 14 during 1917. Only 2 of these originated in New York, while 19 were already in the incubation period at time they entered the city.

Tetanus

Twelve cases occurred as against 19 during 1917. Only three of these occurred in July, and but one in June. In no instance was the disease due to effects of fireworks.

Seven of the cases occurred in children under 15 years, and the remainder in persons over forty years. Eight cases followed a wound of the leg or foot; one of these followed a frostbite, one a surgical operation and three were due to stepping on rusty nails.

Typhus Fever

Thirteen cases occurred as against 24 in 1917. Eight occurred in Manhattan, and 5 in Brooklyn. Of those in Manhattan, 7 were on the east side. None of those affected were recent immigrants nor had they been in contact with those who had recently arrived in this country. While a small number were found infested with lice, the majority showed no evidence of vermin. The cases were all mild and recovered.

Trichinosis

Only two cases were reported. Their report led to investigation of the butcher shops where these patients had purchased meat, for inspection of meat offered for sale.

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Pellagra

Probably because it is not included in our list of reportable diseases, only two cases were reported. It is more than likely that the actual number of cases was larger.

Leprosy

No new cases were reported. All told, we have 27 cases under observation; 13 are receiving hospital care; the others, being in a non-infectious state (non-ulcerative), are permitted to live at home, but are examined twice a year.

Glanders

No cases of human glanders were reported.

In our efforts to prevent occurrence of glanders, the veterinarians attached to this bureau have maintained a careful supervision over animals, particularly in sales stables. 2,246 horses were tested, and of this number 307 were condemned, as compared with 307 in 1918, 403 in 1916, 704 in 1915, 1,153 in 1914, 1,138 in 1913 and 1,479 in 1912, indicating that our activities have resulted in a definite reduction in number of horses suffering from glanders.

Rabies

No cases of human rabies were reported. This is a reflection of the thoroughness with which the muzzling ordinance is enforced, the result of prompt local treatment of wounds inflicted by suspected animals, and the thorough and prompt Pasteur treatment carried out in appropriate cases by this bureau. 162 persons received Pasteur treatment during the year. 1,336 persons consulted our offices for advice with reference to Pasteur treatment following infliction of bites by dogs and cats.

The supervision of animals which have bitten human beings shows another phase of our efforts in prevention of human rabies. 2,721 dog bites were reported. 1,546 of the dogs were removed to the dog shelter for observation; 1,175 were not removed because it was found that the dogs had been provoked to bite and gave no evidence to warrant suspicion of rabies. Of those removed to the shelter, 772 were destroyed either as homeless or because guilty of repeated offenses. 774 were released and returned to owners. The stray dogs numbered 241. Eighteen animals were found suffering from rabies. 230 dogs that had bitten persons were leashed at the time injury was inflicted. 108 were muzzled at the time, showing that muzzle was of improper type. 68 were both leashed and muzzled at the time.

121 cat bites were reported during the year; one animal was found suffering from rabies; 45 were destroyed.

3,068 Pasteur injections were given to 162 persons, an average of nearly 19 injections per person. Table 8 shows these details and also indicates

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additional activities in administration of antitoxin and vaccine to persons who applied for such injections at our main offices. Our administration of a special influenza vaccine was conducted by the twenty tuberculosis clinics of the bureau during the epidemic. We were unable to follow any of these cases to ascertain results of these injections, but experience with same vaccine in connection with its use in industrial and other establishments led to belief that it was practically without value. The first-aid treatment referred to in this table is in connection with bites of various animals.

Tuberculosis.

With the development of newer phases of public health work, this disease, which next to pneumonia and the degenerative diseases, ranks highest as a cause of death, has been unjustly removed from the foreground. While during the last twenty years, the mortality rate from pulmonary tuberculosis has been reduced from 2.39 per thousand population to 1.50, and while there has been a similar reduction in deaths from other forms of tuberculosis, tuberculosis is still responsible for 10,097 deaths out of 98,119 which occurred in this city last year, or slightly more than 10% of all deaths. While we have had a total of 3,332 deaths from typhoid fever, measles, scarlet fever, diphtheria, whooping cough and cerebro spinal meningitis combined, we have had 8,779 deaths from pulmonary tuberculosis alone.

A general survey shows that there were registered in this bureau 33,877 cases of tuberculosis at beginning of 1918, and at the end of the year, 32,048 cases. While at beginning of the year we had 2,181 cases less than at beginning of 1917, at end of the year our registration was still further diminished by 1,829 cases, making our registration at end of 1918 smaller by 4,010 cases than at beginning of 1917. This experience has been shared by other communities. It is possible that the drafting into military service from the City of New York of 171,422 men who belonged to age groups among whom we ordinarily find cases of tuberculosis may account to a considerable degree for reduction in number of cases reported. Moreover, immigration had ceased entirely during two years, and this was another factor which lowered the number of susceptibles normally added to our population. Also, war industries in various sections of the country offered alluring opportunities to men and women of susceptible age periods, and many thousands were drawn to other communities. Our system of checking up deaths with a view to discovering delinquent physicians who failed to report cases of tuberculosis, has been continued, and it is probable that there was no appreciable relaxation in the reporting of tuberculosis.

We have continued to maintain the classification with reference to registered cases of tuberculosis. The cases under care of private physicians during 1918 were 3,816, or 11% of the registered cases. Here, too, the lowered tuberculosis registration is reflected, since, during 1917, private physicians had under their care 3,923 cases.

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Tuberculosis Cared for in Institutions.

Of tuberculosis cases registered 5,272 were under care of city institutions at beginning of the year, and 2,784 were in places out of town or in sanatoria. In other words, only about 25% of the registered cases were admitted to institutions or left the family circle to go out of town to arrest the disease. To the public health officer, this is of special significance because it means that the great majority of cases remained in the family environment as a source of infection.

Homeless and Lost Cases.

In a city as large as New York a number of individuals in whom diagnosis of tuberculosis has been made by private physicians or dispensaries, are lost sight of because they move to new addresses or leave town. There were 8,472 cases of this character at beginning of 1918. They suggest a potent source of infection most difficult to remedy because they cannot be supervised to protect others.

The lodging house population contributes in largest measure to this problem.

SUPERVISION OF HOME CONDITIONS OF PATIENTS.

At beginning of 1918, 12,218 patients were under supervision of nurses of the Bureau. The others were either under care of non-departmental clinics, of private physicians, had entered institutions, or were classed as homeless and could not be located.

However, one should bear in mind that if, in latter half of the table, it is found that 10,536 cases are on record at end of the year as "at home" cases, it does not mean that our nurses' efforts were limited to supervision of just 12,218 or of 10,536 cases during the year. Many cases which originated between these dates were terminated. It simply shows the bookkeeping account of number of cases on record and applies to other items connected with table 14.

Cases Under Care of Private Physicians.

Mention has been made that 3,816 cases were under care of private physicians at beginning of the year. These cases present a peculiar problem from the standpoint of possible transmission of tuberculosis to others. When private physicians report cases, they almost invariably make a formal request that nurses of the Department should not be sent to homes of their patients to supervise sanitary conditions. The assumption has been that the private physician exercised personal supervision and took every necessary measure to guard against transmission of infection. In actual practice, we find that the physician makes a stereotyped form of report upon clinical condition of his patient every two months, but in majority of instances, he does not visit the home of patient, and exercises little, if any, control over sanitary conditions. Recognizing this fact, an investigation was made in the Chelsea district which showed that of 70 physicians who had such private patients, a negligible per cent. (20%) were

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able to state whether home conditions were satisfactory and whether patient and family were observing precautions needful to prevent spread of tuberculosis. Without infringing upon rights or prerogatives of private physicians in control of their cases, we should require them to render an accounting at stated intervals with respect to home conditions as observed by them, so that we may be assured that there is no relaxation in measures for prevention of the spread of tuberculosis. *During 1918, 14,439 new cases were added to our tuberculosis register and 17,296 cases were removed from the register because of death, removal, or other reasons.*

While the ten non-departmental clinics which are members of the Association of Tuberculosis Clinics and which operate exclusively in Manhattan, had 1,385 cases under care *at end of 1918*, the seven clinics of this Bureau in Manhattan had 3,454 cases under care. The number of cases under care of our twenty tuberculosis clinics was 6,025 at end of the year, and the total cases cared for by them *during the year* was 8,453. In addition, at end of the year there were 3,044 cases under observation pending diagnosis. In other words, our clinics are contributing more substantially than private physicians or any other agency in the City to the actual treatment and care of tuberculosis patients, and are the chief organized means of defense in prevention and control of tuberculosis in the community. During the year, they examined 14,264 new patients. 5,681 patients who had discontinued their attendance at the clinics returned for diagnosis. Altogether 23,239 patients who attended the clinic had a definite diagnosis made with reference to presence or absence of tuberculosis, or some other pathological condition. 3,408 new cases were added to those already enrolled in the tuberculosis clinics as positive cases, making a total of 8,453 positive cases under supervision of our branch offices during the year. 5,215 patients discontinued attendance at clinic before a diagnosis had been arrived at. Adding the cases which did not continue attendance to the cases in which a diagnosis was made, we had a total attendance of 28,284 patients during 1918. Of these 9,342 were diagnosed as non-tuberculous and discharged. Of the 8,453 patients who were treated in Department clinics during 1918, 310 or 3.6% die. (Tables 14 and 15.)

The total of new patients whose cases were undiagnosed and who were readmitted to clinics for diagnosis, and of cases held over from preceding year for diagnosis was 23,239. Of these 10,991 or 47% were found non-tuberculous. A number of non-tuberculous cases were found to be suffering from a variety of conditions, for treatment of which they were referred to private physicians and various institutions. Also, of these 23,239, a total of 3,408, or 14.6% were found to have tuberculosis.

1,291 cases of the 8,453 treated in our clinics during the year or 15.2% were terminated because disease had been arrested. 88,223 visits were made by all of these patients to our clinics during the year.

The total visits made to cases of tuberculosis for purpose of supervision by

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our nurses was 144,501. This was 46,614 fewer than in 1917, but is accounted for by the unprecedented demand upon the nursing service in connection with influenza epidemic.

Analysis of Certain Interesting Data With Reference to 14,174 Applicants For Examination in the Manhattan, Brooklyn and Bronx Clinics.

Table 10 states facts with reference to sex, marital state, age, religion, nationality, and sources from which these cases came. 51.5% of applicants for examination were males; 58.6% were single, and 36.7% married; 38.9% were boys and girls under 16 years; 29.7% were between 25 and 40 years; 48.6% were Catholic and 38.9% Hebrew. The largest number of any one nationality were Russians, namely 17.8%; the next largest, Italians.

A brief analysis of a few essential facts which speak for themselves was made among the 3,121 cases treated in our clinics in Manhattan, Brooklyn and The Bronx which were diagnosed as cases of tuberculosis.

POSITIVE CASES

		Per Cent.
AGE		
0-15 years.....	15	0.5
5-15 years.....	204	6.5
15-25 years.....	799	25.6
25-40 years.....	1,315	42.1
40-55 years.....	627	20.1
55 years and over.....	161	5.2
Total.....	3,121	
SEX		
Male.....	1,923	61.6
Female.....	1,198	38.4
Total.....	1,321	
MARITAL STATE		
Single.....	1,377	44.1
Married.....	1,516	48.6
Widowed.....	228	7.3
Total.....	3,121	
RELIGION		
Catholic.....	1,586	50.8
Protestant.....	557	17.9
Hebrew.....	950	30.4
Others.....	28	0.9
Total.....	3,121	
PREVIOUS HISTORY		
Pneumonia.....	567	18.2
Pleurisy.....	484	15.5
Influenza.....	594	19.3
Measles.....	1,496	48.0

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PRESENT SYMPTOMS		Per Cent.
Cough.....	2,796	89.6
Pain in chest.....	1,993	63.9
Haemoptysis.....	642	20.6
Loss of weight.....	1,915	61.3
DURATION OF SYMPTOMS		
Less than 8 months.....	1,387	44.5
Less than 1 year.....	552	17.7
1 year and over.....	925	27.6
Came for examination only.....	257	8.2
Total.....	3,121	
LESION		
Left lung.....	613	19.7
Right lung.....	950	30.4
Both lungs.....	1,558	49.9
Total.....	3,121	
STAGE		
First.....	1,523	48.8
Second.....	1,293	41.4
Third.....	305	9.8
Total.....	3,121	
POSITIVE SPUYTUM.....	1,379	44.2
TBC. LARYNGITIS.....	60	1.9
DIAGNOSIS 1ST VISIT.....	1,945	62.0
NOT BEING ABLE TO WORK WHEN APPLIED.....	1,118	38.4

POSITIVE CASES FOR 1918—MANHATTAN, THE BRONX, BROOKLYN

	Nation- ality	Per Cent.
United States.....	1,384	44.3
Austria.....	220	7.0
Canada.....	6	*
Denmark.....	3	*
England.....	42	1.3
Finland.....	12	*
France.....	12	*
Germany.....	86	2.8
Greece.....	18	*
Hungaria.....	36	1.1
Ireland.....	176	5.6
Italy.....	377	12.1
Norway.....	22	*
Poland.....	20	*
Porto Rico.....	5	*
Roumania.....	34	1.1
Russia.....	548	17.6
Scotland.....	18	*
Spain.....	12	*
Switzerland.....	7	*
Sweden.....	23	*
Turkey.....	17	*
West Indies.....	6	*
Various.....	37	1.1
	3,121	

*Number so small as not to justify statement in terms of percentage.

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Day Camps.

In June repairs were completed which permitted resumption of classes on board the Day Camps Manhattan and Rutherford. For years these boats had been used as a place of refuge for men, women and children in various stages of tuberculosis. A large proportion of these were idlers who refused to enter tuberculosis institutions, or were cases so far gone as to be hopeless; yet all these men, women and children were mingled indiscriminately almost, on these boats. Theoretically, the day camp was a way-station for individuals waiting their turn to be admitted to tuberculosis institutions. In practice, these boats were serving no definite constructive purpose. On July 1, 1918, the officers of the bureau were directed to limit admission to the Day Camps to children between ages of 4 and 15, inclusive. No tuberculosis cases were to be accepted. Only those who were exposed to tuberculosis by contact with a positive case at home, or who presented definite signs of a tuberculous tendency or marked malnutrition together with poor home environment were to be accepted. In addition, instructions were given to those in charge that they would have to acquaint themselves with methods in vogue in Bellevue and other nutritional clinics for the selection and preparation of foods to be given to the children, and to become familiar with caloric and special nutritional needs of different types of children.

Three meals are given to each of these children and they are cared for from 9 A. M. to 5 P. M. daily, excepting Sunday and holidays.

The nurses connected with the day camps were instructed emphatically to keep in touch with parents of these children, and to have them visit the Day Camp boats, if possible, so that they might learn by precept and example the proper method in care of their children. In addition, the nurses were required in all cases to visit homes of these children periodically and to instruct parents in matters of general hygiene, cleanliness, rearrangement and hygiene of sleeping quarters, proper preparation of foods, and other details which affect welfare of these children.

Despite the limit in amount of time which these children spent on these boats, and the fact that they return to homes which are often insanitary, very distinct and marked benefits have resulted from our care. The following are excerpts from report of the Physician and Nurse-in-charge of the Day Camp "Manhattan:"

"The following table will show results obtained in 67 children who received treatment in periods varying from 1 to 4 months. This group comprises 21 who were far below normal weight, that is, from 7 to 20 pounds on admission; 29 moderately below normal weight, from 3 to 7 pounds, and 17 apparently healthy, normal weight, exposed to tuberculosis:"

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GROUP I	GROUP II	GROUP III
Far below normal weight	Moderately below normal weight	Normal weight exposed to Tuberculosis
3 no gain 2 gained 1 pound 6 gained 2 pounds 4 gained 3 pounds 2 gained 4 pounds 2 gained 5 pounds 1 gained 6½ pounds 1 gained 7½ pounds	4 no gain 3 gained 1 pound 6 gained 1½ pounds 5 gained 2 pounds 7 gained 3 pounds 2 gained 4 pounds 1 gained 5 pounds 1 gained 9 pounds	1 no gain 4 gained 1 pound 4 gained 1½ pounds 3 gained 2 pounds 2 gained 3 pounds 3 gained 4 pounds

"The average daily attendance was 64.88. The total breakfasts and dinners served were 18, 736, and 9,368 after-school luncheons. Remaining on register January 1, 1919, there were 66 girls and 38 boys, which included 25 children far below normal weight, 21 moderately below, and 58 who were exposed to tuberculosis at home."

"In October, the system of feeding the children according to number of calories required by various age groups, was instituted and has proven satisfactory and beneficial. The character of diet is illustrated by a copy of the boat menu for one day. The children are arranged at tables in groups according to their dietary needs."

	GROUP I	GROUP II	GROUP III
	Ages 4-7 Calories required 24 hrs.—1400-1700	Ages 8-10 Calories required 24 hrs.—1400-2000	Ages 11-14 Calories required 24 hrs.—2000-3000
BREAKFAST			
Soft boiled egg.....	1 75c	1 75c	1 75c
Milk.....	8 oz. 160c	8 oz. 160c	8 oz. 160c
Bread and butter.....	1½ slices 135c	2 slices 180c	3 slices 270c
DINNER			
Roast beef.....	2 oz. 200c	3 oz. 300c	4 oz. 400c
Boiled potatoes.....	1 med. size 90c	1½ med. size 135c	2 med. size 180c
Hot butter beets.....	1 tblpful 40c	2 tblpful 80c	2 tblpful 80c
Stewed apricots.....	1½ tblpful 75c	2 tblpful 100c	2 tblpful 100c
Bread.....	½ slice 35c	1 slice 70c	1 slice 70c
Milk.....	4 oz. 80c	6 oz. 120c	6 oz. 120c
AFTER SCHOOL LUNCHEON			
Milk or cocoa.....	6 oz. 120	6 oz. 120c	6 oz. 120c
Bread and butter.....	1½ slice 135c	2 slices 180c	3 slices 270c
Total.....	1145c	1520c	1845c

"Physical defects noted upon admission:

94 dental caries

6 eye diseases

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- 4 skin diseases
 - 5 tubercular glands
 - 2 curvature of spine
 - 6 enlarged tonsils
 - 1 goitre
 - 4 cardiac diseases.
- 134 patients were discharged to various institutions as follows:
- 22 to preventoria
 - 14 to fresh air homes
 - 77 to public schools
 - 12 to clinics
 - 6 to clinics
 - 3 (not found)

Of these 67 remained for periods less than one month."

"The children remain on the boat only 8 hours out of the 24 and it is of course impossible to give food in quantity sufficient to cover the 24 hour caloric requirement, but many receive food during the period at home in quantity sufficient to bring calories up to normal requirement, but frequently the food given at home is of inferior quality, and not selected as to needs of the child."

"To the end that some of these defects in feeding at home may be remedied, the children are instructed on the boat by simple health talks regarding food value and the important relation between eating proper food for the development of health and normal growth of the body. Table etiquette also receives attention and they are taught how to set the table properly."

"This instruction is also carried to mothers in the homes by visiting nurses, who also advise on other important matters, such as sleeping accommodations, proper ventilation and suitable clothing. She also obtains important information regarding habits and general conditions under which the child is living, which often gives the clue as to best mode of treatment. These visits to the home, and mothers' meetings on the boat establish friendly relations, and have resulted in good cooperation between the home and the boat."

"We have so many children suffering from dental caries, that a dentist has to come and repair the teeth once or twice a week."

"The work of the open air school under direction of the Board of Education was resumed when the boat opened, and owing to increased attendance now requires services of three teachers instead of two."

Social Activities.

"The social side of the children's life at the Day Camp is not neglected and include frequent impromptu parties with a dance and simple refreshment, a Halloween party, a Thanksgiving dinner and entertainment, and a Christmas dinner and entertainment."

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"During the summer the Hudson-Delaware Steamship Company gave 60 of our children an all day's outing to Atlantic Highlands on the Steamer Mandalay."

Day Camp Rutherford.

The history of the Day Camp Rutherford is practically identical with the Manhattan. The number of cases on register December 31, 1918, was 93, with daily average attendance of 86. Three public school teachers are assigned by the Board of Education, 1 sewing teacher and 1 manual training teacher by Brooklyn Bureau of Charities, and 1 cobbling teacher by New York University Extension Society.

The following is statistical data from July 29 to December 31:

	<i>Boys</i>	<i>Girls</i>	<i>Total</i>
Retained July 29, 1918.....	10	7	17
Admitted	54	75	129
Discharged	24	29	53
On register December 31, 1918.....	40	53	93
Cases admitted were:			
Non-tubercular			52
Malnutrition			71
Anaemia			6
Cases discharged:			
	<i>Boys</i>	<i>Girls</i>	<i>Total</i>
Improved	17	13	30
Unimproved	7	16	23
All of the unimproved cases were in day camp less than 30 days			
	<i>Boys</i>	<i>Girls</i>	<i>Total</i>
Gain of 2 or more lbs. and general improvement since admission.....	25	44	69
Retained some weight and general condition about same on admission.....	13	7	20
Loss of weight and general condition unimproved	2	2	4

It was felt with reference to the day camps that we had made but a crude beginning in direction of establishing a preventorium for children conducted in the heart of the city. During latter part of the year, negotiations were begun with a group of young persons known as the New York Consumptive Relief League, Inc., who were interested in cooperating to transform the day camp service into a preventorium that would care for children both day and night and thus remove them from the unfavorable influence of home environment until their power of resistance had been sufficiently reenforced. It appears that these negotiations will be successful, in which event it will be possible to make a radical departure in preventorium treatment, and we may then be able to demonstrate, that even under crude conditions, such as neces-

BUREAU OF PREVENTABLE DISEASES

sarily exist on ferryboats pressed into service as preventoria, that a great deal can be done in the heart of the city to prevent development of tuberculosis, by attacking the problem in age groups which are most important from standpoint of prevention, namely, those from 4 to 15 years of age.

It is most unfortunate that for an experiment of this kind, we have no better housing facilities than these discarded ferryboats which at best offer poor facilities for properly carrying out such an important experiment. Moreover, we constantly fear that with advent of winter, the pipes may again freeze and burst and thus deprive us of use of the boats for an extended period. I would very strongly urge that ground belonging to the city be set aside for construction of shacks which are secure against effects of inclement weather so that this demonstration of the value of preventorium treatment in the heart of the city, may be carried out uninterruptedly. The Pelham Bay section, or even such ground as is now used for housing of soldiers on the Court House site, would be ideal for the purpose.

Venereal Diseases.

During 1918 we proceeded not only in regular routine of venereal disease advisory work, but launched new activities which marked a most radical departure.

In our accustomed field of work 17,320 cases of syphilis reported. This marked a reduction as compared with two preceding years, in which all boroughs seemed to share. 6,358 cases of gonorrhoea were reported to the Department. This, too, marked a reduction as contrasted with previous years. Our methods for insuring the reporting of cases of syphilis and gonorrhoea lacked the thoroughness of those employed where police powers are exercised frequently to enforce the law. While I do not counsel resort to police power, I feel that such could be done if the supervision of communicable diseases both in institutions and in private practice would be lodged, as it belongs, solely with the Bureau of Preventable Diseases. Physicians, particularly those who specialize in treatment of gonorrhoea and syphilis, could be educated to report their cases, through a more centralized supervision of genito-urinary clinics, if exercised by this bureau. The advisory service as a whole does not compare favorably with previous years, but this loss is compensated for by the new and important activities which the Division of Venereal Diseases entered upon July 1, 1918.

INDUSTRIAL HYGIENE.

Field Activities.

337 establishments were investigated. The principal industries were printing, pattern making, mattress, pearl buttons and piano manufacturing, millinery and plating. In various departmental and other publications have been described the methods of work pursued by this Division and the present summary of field activities is submitted without repeating such analyses. (See table 12.)

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

ANNUAL REPORT FOR 1918
TYPHOID FEVER

TABLE 1

	City	
	1917	1918
Population.....	5,773,492	5,872,143
<i>Cases Reported</i>		
(A) True cases.....	1,442	1,238
(B) No cases.....	251	197
Deaths.....	229	196
Blood sent to laboratory		
(A) Positive.....	1,388	923
(B) Negative.....	10,604	7,216
(C) Doubtful.....	883	816
Mode of infection		
1. (A) Contact with precocious carrier.....	43	9
(B) Contact with active case.....	96	86
(C) Convalescent carrier.....	12	3
(D) Chronic carrier.....		
(1) Chronic carrier inferred.....	69	38
(2) Chronic carrier proven.....	14	26
Total contact cases.....	235	162
2. Contaminated milk.....	75	61
3. Contaminated well.....	1	0
4. Contaminated spring.....	5	0
5. Contaminated bakery products.....	16	0
6. <i>Out of town</i>		
(A) Infection.....	205	213
(B) Exposure.....	43	28
Total out of town.....	248	241
Total not traced.....	870	774
Total traced.....	572	464
Per cent. traced.....	40	37.4
<i>Immunization</i>		
(A) Following direct exposure.....	1,766	1,122
(B) General prophylaxas.....	15,060	9,129
Total.....	16,826	10,251
Refusals by exposed persons.....	3,662	4,449
Patients treated		
(A) At hospital.....	898	781
(B) At home.....	544	457
Per cent in hospital.....	61.6	63.1
Per cent case fatality.....	15.8	16
Case incidence per 100,000.....	25.1	21
Death rate.....	4	3.3

STUDY BY AGE, GROUPS AND SEX.
TYPHOID FEVER.
1918.
NEW YORK CITY.
TABLE 2.

COMMENTS ON TYPHOID STUDY OF AGE, GROUPS AND SEX.
FOR 1918.

Google

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

BUREAU OF PREVENTABLE DISEASES COMMUNICABLE DISEASES: CASES AND DEATHS, 1918

TABLE 3

	Cases Reported		Cases per 1000 of Population		Deaths		Deaths per 1000 of Population		Cases Fatality Per Cent	
	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918
Diphtheria:										
Manhattan.....	6304	5164	2.35	1.89	589	598	.22	.22	9.34	11.58
Bronx.....	1447	1873	2.41	3.01	104	139	.17	.22	7.19	7.42
Brooklyn.....	3679	3386	1.86	1.67	363	395	.18	.19	9.87	11.64
Queens.....	859	811	2.26	2.06	81	94	.21	.24	9.43	11.59
Richmond.....	335	221	3.36	2.17	21	18	.21	.18	6.27	8.15
City.....	12624	11455	2.20	1.95	1158	1244	.20	.21	9.17	10.86
Scarlet Fever:										
Manhattan.....	2328	1782	.87	.65	54	93	.02	.03	2.32	5.22
Bronx.....	1065	863	1.78	1.39	14	10	.02	.02	1.31	1.16
Brooklyn.....	1903	1332	.94	.66	28	57	.01	.03	1.47	4.28
Queens.....	806	395	2.12	1.01	24	16	.06	.04	2.98	4.05
Richmond.....	158	88	1.58	.86	1	1	.01	.01	1.14	1.14
City.....	6260	4460	1.09	.76	120	177	.02	.03	1.92	3.97
Measles:										
Manhattan.....	14213	9869	5.30	3.61	396	370	.15	.14	2.79	3.75
Bronx.....	4614	3940	7.70	6.33	37	57	.06	.09	.80	1.45
Brooklyn.....	6077	11559	3.08	5.71	93	310	.05	.15	1.53	2.68
Queens.....	1955	2582	5.15	6.57	29	44	.08	.11	1.48	1.70
Richmond.....	580	725	5.61	7.13	5	9	.05	.09	.89	1.24
City.....	27419	28675	4.78	4.88	560	790	.10	.13	2.04	2.75
Whooping Cough:										
Manhattan.....	1998	1920	.74	.70	236	228	.09	.12	11.81	17.08
Bronx.....	902	978	1.51	1.57	57	73	.09	.12	6.32	5.83
Brooklyn.....	2247	1792	1.14	.86	161	163	.08	.08	7.17	9.10
Queens.....	379	593	1.00	1.51	31	83	.08	.21	8.18	14.00
Richmond.....	71	275	.71	2.70	4	17	.04	.17	5.63	6.18
City.....	5597	5558	.98	.95	489	664	.08	.13	8.74	11.95
Pulmonary Tbc.										
Manhattan.....	9476	7885	3.53	2.89	4219	4321	1.57	1.58	44.5	54.80
Bronx.....	1633	1501	2.73	2.41	1042	967	1.74	1.55	63.8	64.4
Brooklyn.....	5398	4228	2.78	2.06	2813	2677	1.42	1.32	51.1	63.3
Queens.....	717	680	1.89	1.73	577	626	1.52	1.59	80.5	92.1
Richmond.....	170	145	1.70	1.43	175	168	1.75	1.85	103.0	129.6
City.....	17494	14439	3.05	2.46	8826	8779	1.54	1.50	45.7	60.8
Typhoid Fever:										
Manhattan.....	596	554	.22	.20	97	84	.04	.04	16.3	15.2
Bronx.....	167	141	.28	.23	27	16	.04	.03	16.2	11.4
Brooklyn.....	480	453	.24	.22	80	81	.04	.04	16.7	17.9
Queens.....	87	75	.23	.19	19	9	.05	.02	21.8	12.0
Richmond.....	112	15	1.12	.15	6	6	.06	.06	5.4	40.0
City.....	1442	1238	.25	.21	229	196	.04	.03	15.9	15.8
Cerebro-Spinal Men.										
Manhattan.....	194	234	.07	.09	108	145	.04	.05	55.9	57.70
Bronx.....	24	22	.04	.03	12	6	.02	.01	50.0	27.27
Brooklyn.....	84	164	.04	.08	59	92	.03	.04	70.2	56.10
Queens.....	17	31	.04	.07	7	12	.02	.03	41.2	38.71
Richmond.....	3	26	.03	.26	1	7	.01	.07	33.3	26.92
City.....	322	477	.06	.08	187	262	.03	.04	58.1	54.94
Acute Poliomyelitis:										
Manhattan.....	57	59	.02	.02	19	12	.007	.004	33.3	20.34
Bronx.....	26	19	.04	.03	9	3	.01	.005	34.6	15.79
Brooklyn.....	39	48	.02	.02	17	11	.009	.005	43.6	22.92
Queens.....	14	8	.04	.02	8	3	.02	.007	57.1	37.50
Richmond.....	2	1	.02	.01	1	1	.01	.01	50.0	100.0
City.....	138	134	.02	.02	53	29	.009	.005	31.9	21.04

BUREAU OF PREVENTABLE DISEASES

INCIDENCE FOR 1917-1918 AND 5 YEAR AVERAGE, 1914-1918, FOR DIPHTHERIA, SCARLET FEVER, MEASLES, WHOOPING COUGH, ETC., TYPHOID, C. S. M. AND POLIO. NEW YORK CITY. ALL BOROUGHES.

TABLE 4

	Cases Reported.			Cases Per 1,000 Population.		Deaths.			Deaths Per 1,000 Population.		Cases Fatality Per Cent.	
	1917	1918	5 Year Average.	1917	1918	1917	1918	5 Year Average.	1917	1918	1917	1918
Diphtheria.....	12,624	11,455	14,060	2.20	1.95	1,158	1,234	1,240	.20	.21	9.17	10.86
Scarlet Fever.....	6,260	4,460	7,503	1.09	.76	120	177	237	.02	.03	1.92	3.97
Measles.....	27,419	28,676	28,335	4.78	4.83	660	790	606	.10	.13	2.04	2.75
Whooping Cough.....	5,567	5,558	5,536	.98	.95	489	664	425	.08	.13	8.74	11.95
Tuberculosis.....	17,464	14,439	19,016	3.05	2.46	8,526	8,779	8,751	.64	1.80	46.7	60.8
Typhoid.....	1,442	1,238	1,802	.25	.21	229	195	261	.04	.03	18.9	16.8
C. S. M.....	322	477	310	.06	.08	157	262	190	.03	.04	88.1	54.94
Polio.....	133	134	1,804	.02	.02	53	29	515	.009	.005	31.9	31.64

COMMENTS ON STUDY IN DIPHTHERIA, ETC.

The outstanding feature of the 1918 incidence compared with 1917 is the increased mortality in all diseases above mentioned with exception of Typhoid Fever and Polio. On the contrary, the morbidity decreased excepting in Measles and C. S. M., which were slightly in excess of 1917.

The 1918 mortality compared with 5 year average (1914 to 1918), was higher in Measles and C. S. M.; in the other diseases it was less.

The 1918 morbidity, compared with 5 year average (1914 to 1918), was higher in Diphtheria, Measles, W. C., Tbc., and C. S. M., while Scarlet Fever, Typhoid and Polio, were less.

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TABLE 5
COMMUNICABLE DISEASES
DEATH RATE PER 100,000 POPULATION

	Manhattan	Bronx	Brooklyn	Queens	Richmond	City
Whooping Cough:						
1913.....	7	8	7	11	11	7
1914.....	6	3	4	5	5	5
1915.....	9	8	5	10	5	7
1916.....	8	6	4	6	8	6
1917.....	6	9	8	8	4	9
1918.....	12	12	8	21	17	13
Six years average.....	8.5	7.6	6	10	8.3	7.5
Measles:						
1913.....	15	12	8	8	18	12
1914.....	14	7	6	6	4	10
1915.....	16	8	7	6	26	11
1916.....	13	6	4	4	1	9
1917.....	15	6	5	8	5	10
1918.....	14	9	15	11	9	13
Six year average.....	14.5	8	11	7	10.5	11
Diphtheria:						
1913.....	26	25	24	25	13	25
1914.....	29	28	23	22	11	26
1915.....	23	26	23	22	19	23
1916.....	18	18	19	18	16	18
1917.....	22	17	18	21	21	20
1918.....	22	22	19	24	18	21
Six year average.....	23	22.6	21	22	16.3	22
Scarlet Fever:						
1913.....	8	8	11	12	11	9
1914.....	9.9	5.8	6	10	3	8
1915.....	5	4	5	7	3	5
1916.....	2	2	2	3	1	2
1917.....	2	2	3	6	1	2
1918.....	3	2	3	4	1	3
Six year average.....	5	4	7	7	3	7
Typhoid Fever:						
1913.....	7	5	7	6	5	7
1914.....	6	5	6	6	4	6
1915.....	5	4	7	5	6	6
1916.....	3	4	4	6	8	4
1917.....	3	4	4	5	6	4
1918.....	4	3	4	2	6	3
Six year average.....	6.6	4	5.3	5	6	5
C. S. M.						
1913.....	5	4	3	3	4	4
1914.....	4	3	3	4	9	4
1915.....	2	3	2	2	..	2
1916.....	4	3	3	2	1	3
1917.....	4	2	3	3	1	3
1918.....	5	1	4	3	2	4
Six year average.....	4	2.6	3.3	2.6	5	3.3
Poliomyelitis:						
1914.....	.5	1.8	.3	.8	0.	1.
1915.....	.2	.5	.2	1.2	0.	.6
1916.....	27.5	.5	.2	1.2	0.	.6
1917.....	.7	1.5	.8	2.1	0.	.09
1918.....	.7	.3	.6	.6	0.	.6
Five year average.....	5.9	6.9	11.3	19.3	11.7	8.
Tuberculosis:						
1913.....	185	151	141	116	142	160
1914.....	187	143	141	125	161	160
1915.....	173	168	146	153	154	161
1916.....	159	155	135	149	188	150
1917.....	157	174	142	152	175	154
1918.....	158	155	132	159	189	150
Six year average.....	170	160	139.5	142	168	156

BUREAU OF PREVENTABLE DISEASES

TABLE No. 6
EPIDEMIC C. S. M. 1918
NEW YORK CITY

	1917	1918	5 Year Average 1914-18
Cases.....	322.0	476.0	310.6
Deaths.....	187.0	262.0	190.6
Per cent. case fatality.....	58.4	55.0	61.0
Case rate per 100,000.....	5.6	8.0	5.5
Death rate per 100,000.....	3.0	4.3	3.3

TABLE No. 7
CASES AND DEATHS
EPIDEMIC C. S. M. BY AGE GROUPS

	Cases		Per Cent.	Deaths		Per Cent.
	Males	Females		Males	Females	
Under one year.....	45	27	15.0	37	18	20.0
One year.....	43	20	13.0	20	10	11.0
Two years.....	22	13	8.0	7	5	4.5
Three years.....	17	14	5.0	5	5	4.0
Four years.....	13	11	5.0	5	4	3.5
Total under five years.....	140	85	47.0	74	42	44.0
Five to nine years.....	45	31	16.0	17	16	12.0
Ten to fourteen years.....	20	16	8.0	5	4	3.5
Fifteen to nineteen years.....	32	12	7.5	11	6	7.0
Twenty to twenty-four years.....	21	12	7.0	21	9	11.0
Twenty-five to twenty-nine years.....	11	6	4.0	9	6	5.5
Thirty to thirty-four years.....	8	4	3.0	5	2	7.0
Thirty-five to thirty-nine years.....	8	1	2.0	8	1	4.0
Forty to Forty-four years.....	7	2	2.0	4	4	3.5
Forty-five and over.....	17	7	5.5	10	8	7.0
Total.....	300	176	63.0	164	98	37.0
Total both sexes.....					Cases 476	Deaths 262
Rates per 100,000.....					8	4.3
Cases fatality, per cent.....						55

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TABLE No. 8
ANTI-RABIC CLINICS
ANNUAL REPORT OF ALL CLINICS, 1918

	Manhattan	Bronx	Brooklyn	Total
New Cases Treated (Pasteur).....	41	61	60	162
New Cases Given Advice.....	564	484	288	1,336
Number Pasteur Injections Given.....	941	964	1,163	3,068
In addition to above the Clinics have performed the following work:				
Diph. Antitoxin Injections Given.....	0	22	14	36
Tetanus Antitoxin Injections Given.....	0	26	20	46
Typhoid Vaccine Injections Given.....	508	119	356	993
Staphylo-coccus Vaccine Injections Given.....	138	0	55	193
Pertussis Vaccine Injections Given.....	0	0	928	928
Influenza Vaccine Injections Given.....	974	901	14	1,889
First Aid Treatment Given.....	552	76	12	610
Total Attendance.....	3,688	2,653	2,920	2,961

BUREAU OF PREVENTABLE DISEASES

TABLE 9
BUREAU OF PREVENTABLE DISEASES
COMMUNICABLE DISEASES, 1918

	Manhattan	Bronx	Brooklyn	Queens	Richmond	City
Cases reported:						
Small pox.....	17	0	2	1	1	21
Measles.....	9869	3940	17559	2582	725	28675
Scarlet fever.....	1782	863	1332	395	88	4460
Whooping cough.....	1920	978	1792	583	275	5568
Diphtheria.....	5164	1873	3386	811	221	11455
Mumps.....	1777	620	734	106	45	3282
German measles.....	1095	194	243	152	50	1734
Chicken pox.....	2143	681	1016	267	89	4196
Total.....	23767	9149	20064	4907	1494	59381
Cases removed to hospital:						
Scarlet fever and diphtheria.....	2011	174	964	362	65	3576
Visits to cases by nurses.....	56180	18891	37629	15789	8995	13784
Visits to cases by diagnostician.....		71	1044	74	66	2798
Immunized diphtheria.....	1543	41	172	0	0	1782
Injectons typhoid.....	106	0	0	11	0	117
Injectons whooping cough.....	5096	0	50	6	236	5388
Vaccinations performed.....						
Cases reported						
Syphilis.....	12514	959	3406	257	184	17320
Gonorrhoea.....	5010	306	944	82	16	6358
New patients examined in Wasser- man clinic.....	13420	788	5199	0	0	20407
New patients seen by medical adviser	2846	0	651	0	0	3497
Veterinary:						
Horses examined.....	24667	7873	8531	42	576	41689
Horses tested with mallein.....	1248	90	290	42	576	2246
Horses condemned.....	157	21	88	28	13	307
Anti-rabic:						
Dogs examined.....	1090	476	807	267	81	2721
Dogs destroyed.....	287	174	264	27	20	772
Cases of rabies in animals.....	10	4	5	0	0	19
Persons examined for dog bite.....	1171	478	810	269	85	2813
Cats examined.....	69	10	29	2	1	111
Cats destroyed.....	32	8	10	0	1	51
Patients examined in anti-rabic clinic	605	545	348	0	0	1498
Patients—anti-rabic injections.....	941	964	1163	0	0	3068
Patients—tetanus injections.....	0	26	20	0	0	46

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

TABLE No. 10
ANALYSIS OF CERTAIN INTERESTING DATA WITH REFERENCE TO 14,174
APPLICANTS FOR EXAMINATION IN MANHATTAN, BROOKLYN
AND BRONX CLINICS

Male.....	7,296	51.5
Female.....	6,878	48.5
	14,174	
Single.....	8,310	58.6
Married.....	5,201	36.7
Widowed.....	663	4.7
	14,174	
0-16 years.....	5,514	38.9
16-25 years.....	2,302	16.3
25-40 years.....	4,208	29.7
40-55 years.....	1,719	12.1
55 years and over.....	431	3.
	14,174	
Catholic.....	6,894	48.6
Protestant.....	1,677	11.8
Hebrew.....	5,502	38.9
Others.....	101	0.7
	14,174	
Austria.....	932	6.6
Germany.....	167	1.2
Ireland.....	317	2.2
Italy.....	1,590	11.2
Russia.....	2,523	17.8
United States.....	7,671	53.8
Others.....	1,024	7.2
	14,174	
Colored.....	97	0.7
Transferred from other clinics.....	662	4.7
Referred by Nurse.....	6,170	43.5
Referred by Patient.....	3,965	28.
Referred by Physicians.....	1,456	1.
Out of District.....	1,247	8.8

BUREAU OF PREVENTABLE DISEASES

TABLE NO. 11
TUBERCULOSIS

	Tuberculosis Cases in Register December 31		Cases per 1000 of Population		Deaths		Deaths per 1000 of Population		Cases Fatality Per Cent		New Cases Reported	
	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918
Manhattan.....	19,721	18,903	7.35	6.92	4219	4321	1.57	1.58	21.40	22.86	9476	7885
Bronx.....	3,459	3,477	5.77	5.54	1042	967	1.74	1.55	30.12	28.05	1633	1501
Brooklyn.....	8,737	7,792	4.42	3.85	2813	2677	1.42	1.32	32.20	34.36	5398	4228
Queens.....	1,651	1,654	4.35	4.21	577	626	1.52	1.59	34.95	37.84	717	680
Richmond.....	309	252	3.10	2.48	175	188	1.75	1.85	56.64	74.60	170	145
City.....	33,877	32,048	5.91	5.46	8826	8779	1.54	1.50	26.06	27.40	17494	14439

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

INDUSTRIAL TABLE

NAME.	Ad.	Hazards.					Ven-tila-tion.	Ltg.	Washing Facilities.				Toilets.			Work-room.				
YEAR. 1918.	No.	Dust.	Fumes.	Gases.	Dry Sweeping.	Guarded Machinery.	Mechanical.	Natural.	Natural.	Artificial.	Cold Water.	Basins.	Soap and Brushes.	Hot Water.	Clean.	Light.	Privacy.	Ventilated.	Clean Stairways.	Clean Walls.
Printing.....	69	31	19	1	..	10	4	..	2	3	1	2	2	34	19	..	5	5	2	4
Mattress.....	22	15	..	..	..	2	..	..	1	..	3	..	..	..	1	..	..	..	..	12
Plating.....	9	4	1	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..
Patterns.....	30	27	6	4	2	20	..	3	2	6	1	2	1	9	3	..	1	1	..	2
Pianos.....	14	5	1	..	1	2	3	3	..	..	..	..	..	..	4	4	..	..	..	..
Pearl Buttons.....	14	1	..	..	..	7	..	..	4	3	..	..	..	2	..	..	..	..	..	..
Shoes.....	7	1	..	..	..	1	..	1	..	3	..	..	..	..	4	4	..	..	..	..
Tar.....	6	3	1	1	..	..	..	..	..	..	1	..	..	..	1	1	..	..	..	..
Dolls Heads Mfg.....	4	..	2	..	..	..	..	..	..	..	..	..	..	..	1	1	1	..	..	..
Tinware.....	4	1	2	..	..	1	..	..	1	..	2	..	..	3	2	2	1	1	..	..
Millinery.....	9	..	..	..	..	2	..	2	..	1	1	..	..	1	4	..	3	..	..	..
Sponging.....	3	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Umbrella Handles.....	2	1	..	..	..	1	..	..	1	..	..	..	..	..	1	..	..	..	..	1
Brass.....	3	3	2	..	..	2	..	..	..	1	..	..	..	2	2	2	..	1	1	..
Miscellaneous.....	108	21	9	7	3	23	1	11	12	6	1	8	2	11	8	6	7	2	3	19
Total.....	304	114	45	13	6	71	8	18	13	23	12	12	5	66	64	7	17	9	3	19

BUREAU OF PREVENTABLE DISEASES

HYGIENE

12.

		Welfare	Work.															No. of Employees.		Disposition.				
Clean Halls.	Clean Floors.	Respirators.	Goggles.	Warning Signs.	Cuspidors.	Chairs.	Heating.	Towels.	Lockers.	Drinking Water.	Cups.	Fire Drills.	First Aid.	Rest Room.	Lunch Room.	Men.	Women.	Referred to Sanitary Bureau.	State Ind. Com.	Referred to Miscell. Depts.	Nuisance Abated by Personal Effort.	Total.		
33	6				13	2	6	34	1	5	2		2	3		2,737	1,159	180			42	229		
	27				2											89	6	39			15	54		
	5				19	2	1									53	2	6			9	15		
	1		1		8	3										8,007	888	109			38	47		
					8											963	110	10			37	147		
					8											231	235	37			9	46		
					2											4,307	1,267	12			1	13		
																864	396	11			1	12		
					1											39	18	4			4	8		
																130	17	14			3	17		
																121	285				21	21		
																44	3				3	3		
																28	1	1			5	6		
																113	15	6			8	14		
2	8				26	8	3	10	8	7	10	4	8	5	8	6,399	4,226	147			103	250		
7	30	...	1	...	81	18	13	55	33	17	23	13	18	14	13	24,125	8,628	576	....	7	299	882	

BUREAU OF LABORATORIES

The work of the Bureau of Laboratories has been carried on under seven divisions, namely, Administration, Media Preparation, Diagnosis, Microbial Sanitary Examinations, Production of Serums and Vaccines, Applied Therapy, Special Investigations.

The regular staff consists of 1 Director, 6 Assistant Directors, 1 Medical Inspector, 1 Pathologist, 1 Inspector of Foods, 20 Bacteriologists, 1 Chemist, 1 Chief Clerk, 1 Librarian, 2 Stenographers, 3 Typewriting Copyists, 12 Clerks, 6 Bacteriological Diagnosticians, 57 Laboratory Assistants, 17 Laborers and 75 Helpers.

The complete volume of work, so far as can be indicated by figures, is recorded in special forms and filed weekly, quarterly and yearly in the Division of Administration. A condensed report is sent weekly to the Deputy Commissioner.

The most noteworthy thing this year is the continued increase in both production and distribution of serums and vaccines. To a large part, this increase was necessitated by demands of the Army and Navy, the Red Cross and other relief organizations. To the Federal Government and to these relief organizations, the biological products have been sold at cost of production. Several commercial firms, because of temporary shortages in biological products, have obtained from us considerable quantities in bulk for supply to the Army and Navy.

The active immunization of infants and children against diphtheria, started in 1915, has given very valuable results and will probably become a very important method of preventing this disease. The Laboratory gave important help during the epidemic of influenza.

At present, we are actively at work trying to determine the types of pneumococcus present in prevalent pneumonias with the object of finding the worth of a preventive vaccine.

DIVISION OF ADMINISTRATION.

This division includes the organization and executive control of all work, such as the standardization and apportionment of work and workers; ordering of supplies; bookkeeping for stores and production, including determination of unit costs, and other clerical work consisting chiefly of letters and official reports.

For purposes of direction the Divisions, other than those of Administration and Special Investigations, are divided into two groups; one group, consisting of three divisions, namely, the Division of Media Preparation, of Diagnosis and of Microbial Sanitary Examinations, is placed under immediate charge of the first Assistant Director, and the second group, namely, the Divisions of Production and of Applied Therapy under charge of the second Assistant Director.

BUREAU OF LABORATORIES

The work on applied therapy of meningitis was transferred back to this Bureau. The Division of Special Investigations is made up as usual of investigative work of all divisions.

There have been many changes in staff, chiefly owing to calls for War Service. We were able to add to our force, through financial assistance of the National Committee on Medical Research, a group of workers to assist in investigations on influenza.

Changes in Procedure.

The increased demand for biological products has forced us to make changes in relation to their production and preparation for market. The room now employed for concentration of antitoxins at Otisville is no longer adequate. The installation of a new precipitating room is nearly finished, and will double our present rate of concentration should this, at any time, become necessary.

The new stable under construction during 1917 was completed and is one of the factors which made possible the necessary increase in number of horses. It is probable that without these added quarters we should not have been in a position to meet demands of the Federal Government.

At the 16th Street Laboratory, the increased demands compelled installation of a new filtration room carrying a greatly increased number of batteries of pulp and Berkefeld filtration outfits. A new bottling room was also found necessary. In order to meet the increased labor entailed in filling the large number of containers without unduly increasing the forces, various expedients have been resorted to in facilitating this work, which have resulted in methods of filling, which have been found extremely efficient and expedient.

The distribution department has, because of increased demands, as well as the addition of the distribution of consignment stations, been taxed to its utmost. To make possible this extra work, some extra help has been necessary, as well as increased space, to obtain which, the clerical department has been moved. Space is further conserved by obtaining new furniture which made possible the increased number of workers in space available.

The distribution to consignment stations was transferred to this Bureau from the office of the Chief Clerk. The work entailed consists of supplying consignment stations with biological products for distribution to private physicians. Each order entails, not only clerical work of making up bills and report to the Auditor, but also packing and shipment by Parcel Post of these orders. During the busy season, the packages per day average from fifty to sixty. This added clerical labor as well as that involved in general distribution has necessitated assignment of one clerk to biological product accounting.

Every effort has been made to limit or decrease the amount of labor involved in preparing products for market and in clerical accounting. To decrease labor in packing, changes have been made in character of packages distributed. The main change was in utilization of printed pasteboard cartons in place of

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wooden boxes which require addition of pasters and wrappers. The new containers cost somewhat less than the old and allow a considerable increase in number of packages which can be prepared by one worker. They have been so successful that it is the intention to extend their use to all products distributed in boxes. To decrease clerical labor, a complete revision of methods of accounting for biological products from the incident of manufacture to the time they leave laboratory has been nearly completed. The main object was to prevent reduplication of records and to make original entry the formal entry for record. Another object was to show more clearly in ledger sheets, giving a summary of distribution, how products were distributed; that is, to segregate the products under general distribution headings of General Free Distribution Within the City, billed or cash, as well as products going to consignment stations. This will allow at any time a summary of distributions under these separate headings. We have been fortunate in having advice of accountants of the Office of the Commissioner of Accounts as well as hearty cooperation of the Auditor of the Department.

Distribution of Living Organisms.

All living micro-organisms sent out by this Bureau (over 1,200 specimens yearly) are under close supervision of the first Assistant Director and are sent out in accordance with the state law and State Board of Health regulations.

Librarian's Report.

Number of Volumes	3,000
Number of Medical Journals	32
Number of Pamphlets	5,800

Conferences.

Official luncheons to be given at stated intervals for purpose of discussing questions of interest to different groups of the Laboratory.

Joint conferences of Hospitals and Laboratories of the Department were also started to be held at regular intervals to discuss topics of mutual scientific interest.

DIVISION OF MEDIA PREPARATION.

The actual number of liters of media (10,078) produced this year is about 1,700 less than last year, due partly to a slightly diminished force of the laboratory in general, because of demands of the war, partly to lessened bacteriological examinations of milk, and partly to direction of a portion of activities to the training of laboratory technicians for war work. Two such war classes for laboratory technicians numbering 30 and 50 members respectively have received basic foundations of their instruction and much practical experience in this Division.

BUREAU OF LABORATORIES

Although less media was made in sum total, two particular activities of the laboratory called for greatly increased amounts. These were the search for meningococcus carriers last Spring and in the Fall the preparation of influenza vaccine.

For the meningitis work, 320 liters of special vitamine agar were prepared as a basic medium for use in detection of meningococcus carriers, both in contagious disease hospitals and in various Army and Aviation Camps of this region. Various laboratory workers from these camps came to learn the details of preparing this special medium which has proved most useful also for isolation of the influenza bacillus during the epidemic.

For preparation of the influenza vaccine, 400 liters of glycerine veal agar—the basic medium for stock cultures of influenza bacillus—were made during four weeks. The special apparatus and methods of work adopted during 1917 aided greatly the capacity to deal with the unusual demands made by the epidemic.

Investigation and trial of the newer indicators, advocated by Clark and Lubs for determination of the true reaction of culture media has been begun and promises to aid materially in production of more accurate results.

Under direction of Dr. William H. Park, Director of the Bureau, Chairman of the Milk Committee of American Public Health Association, the standard method for preparation of agar for bacterial examination of milk has been revised. This includes not only a change in method of filtering the agar by means of paper pulp in a Buchner funnel, but also in methods of titration and adjustment of the reaction. This change in determining and adjusting the reaction is much needed since the Standard Method as published by this Committee is referred to by many workers for all kinds of media preparation.

Distribution of media prepared in 1918:

Diphtheria toxin broth.....	1,791	liters
Tetanus toxin broth.....	635	"
Mallein broth.....	14	"
Tuberculin broth.....	7	"
Martín's Peptone.....	576	"
Agar for milk work.....	2,256	"
Agar for water work.....	95	"
Agar for typhoid carrier work.....	602	"
Agar for influenza vaccine.....	402	"
Agar for meningococcus carrier and isolation of influenza bacillus work.....	590	"
Agar for school work.....	18	"
Miscellaneous	3,092	"
Total	10,078	"

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COMPARATIVE SUMMARY OF WORK

Year	Media	Liters Prepared		Number Orders Filled	Sterilized		Pieces of Glassware Washed
		Solu-tions	Titra-tions		Swabs	Tubes, Bottles, Flasks Filled	
1918.....	10,078	3,860	2,451	1,896	70,946	220,488	1,018,825
1917.....	11,785	5,682	2,014	2,490	165,629	185,501	1,024,873
1916.....	10,593	4,934	1,649	2,627	64,627	288,528	1,036,688
1915.....	9,320	4,777	2,132	2,816	.....	275,706	871,275
1914.....	8,541	.....	1,820	850	.....	245,321	.....

DIVISION OF MICROBAL SANITARY EXAMINATIONS.

The work of this division includes routine bacteriological examinations of milk, water and of disinfection tests, and microbal examinations of other food stuffs and of materials from trades, etc.

Water Examinations.

These examinations are for the Sanitary Bureau and full interpretations are made by that Bureau.

SOURCE	WATER	GOOD	FAIR	SUS-PICIOUS	POL-LUTED	TOTALS
NEW YORK CITY (4 Boroughs)	Regular Supply.....	192	61	22	3	278
	Wells.....	36	18	13	7	74
	Springs.....	1	1	6	1	9
	Cisterns and Tanks..	1	0	2	2	5
	Brooks and Lakes.....	0	0	0	3	3
	Baths.....	65	106	30	51	252
	Oceans and Beaches..	33	57	15	52	157
	Ice.....	84	14	6	2	106
	Iced Water.....	14	12	24	21	71
	Special*.....	8	3	5	2	18
OUT OF TOWN— including Ex- aminations for U. S. Army and U. S. Navy	Regular Supply.....	14	2	3	0	19
	Wells.....	15	3	2	0	20
	Springs.....	2	0	1	0	3
	Cisterns and Tanks..	0	2	0	0	2
	Brooks and Lakes.....	1	0	2	0	3
	Ice.....	1	1	0	0	2
	Sewage.....	..	..	..	..	4
Total.....						1,024

*Includes soda waters, medicines. Supply waters passed through private filters, etc.

Milk Examinations.

These examinations are made for the Sanitary Bureau, and the interpretations may be found in that report. The following table gives simply the total samples examined.

BUREAU OF LABORATORIES

KIND	WITHIN GRADE	ABOVE GRADE	NOT CLASSIFIED	TOTAL
Milk, Raw.....	28,615	13,422	1,105	43,142
Milk, Pasteurized.....	19,112	6,619	979	26,710
Cream, Raw.....	69	9	122	200
Cream, Pasteurized.....	5,245	2,543	237	8,025
Ice Creams.....	.....	.....	303	303
Totals.....	53,041	22,593	2,746	78,380

Examination of Oysters.

These examinations are made for the Bureau of Foods and Drugs where an interpretation of results may be found. The score is made according to method recommended by American Public Health Association. Every sample having 50 or less points is passed and every one having more than 50 points is condemned.

EXAMINATION OF OYSTERS

Score:	
Under 50.....	252
50.....	40
Over 50.....	87
Total Examinations.....	379

DIVISION OF DIAGNOSIS.

This division is divided chiefly for sake of topographic convenience into two divisions, namely, Direct Diagnoses and Indirect Diagnoses. The Direct Diagnoses include those more definitely managed diagnoses carried on in a routine way in Laboratories at Headquarters, while Indirect Diagnoses include those requiring a more varied technic best managed in Laboratories at 16th Street.

THE CHIEF DIRECT DIAGNOSES

YEAR	WASSER- MANN	DIPH- THERIA	TUBER- CULOSIS	TYPHOID (WIDAL)
1918.....	71,418	134,054	52,934	9,060
1917.....	123,500	141,284	54,808	13,208
1916.....	55,214	133,032	64,603	17,535

Indirect Diagnoses.

The diagnoses of Rabies and of Meningitis are given below under their respective headings. There have been 2,094 examinations for typhoid carriers and 15,340 for meningitis carriers. In addition, many other special diagnoses

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were made, including infections with *B. anthracis*, *B. pertussis*, streptococcus, amebas, hook-worm, influenza, etc.

The work on diagnosis of tumors has been discontinued during the year because of lack of assistants.

DIVISION FOR PRODUCTION OF SERUMS AND VACCINES.

The distribution, direct or indirect, to all Federal organizations for 1918 is shown in following summary:

Antipneumococcus Serum	2,416 or 241,600 c.c.
100 c.c. vials	132,250 c.c.
In bulk	17,606 vials or 352,120 c.c.
Antimeningococcus Serum	500,900 c.c.
In 20 c.c. vials	17,367—5,000 unit packages or 86,835,000 units
In bulk	300—3,000 unit packages or 900,000 units
Diphtheria Antitoxin	100—1,000 unit packages or 1,000,000 units
In vials or syringes	1,260,000 units
In bulk	150—5,000 unit packages or 7,600,000 units
Tetanus Antitoxin	570—1,500 unit packages or 855,000 units
In vials	130,398,000 units
In bulk	2 c.c. vials, 139
Schick Toxin	Outfits, 17,476
Toxin Antitoxin Mixture	10 c.c. vials, 3,604

Influenza Vaccine.

The sudden and enormous demand for this product superimposed upon demands already existing was the most difficult problem of production to contend with during the year, which were much increased by the prevalence of influenza among laboratory workers. In spite of this all legitimate demands were met and a total of 332,000 c.c. produced which was bottled for distribution.

It has been exceedingly difficult to obtain reports regarding use of this vaccine. Because of the conditions, adequate records are not available. As regards vaccination itself, the controls were inadequate. Where adequately controlled series are available, there is nothing to indicate that the vaccine reduced incidence of the disease or in case of infection, had any influence upon its course.

Lipo-Vaccine.

Because of the wide use of vaccines prepared with an oil or watery menstruum by the United States Army, and because of demand for these products in civil life, the necessary apparatus to carry on this work is in process of installation. The successful production of this vaccine is primarily a technical problem. Its preparation, use, and control, will involve new problems for investigation during the ensuing year.

BUREAU OF LABORATORIES

Diphtheria Toxin and Antitoxin.

Special note should be made of increased demands for Schick toxin and the toxin-antitoxin mixture. These demands are especially noteworthy because they are, essentially, new products as regards general distribution.

Difficulties of the Work.

The increase in amount of products distributed does not indicate the increased labor and difficulties borne by the force during this year. Part of this was due to the fact that skilled members of the force left for enlistment or for positions in other laboratories. Added to this were the greatly increased difficulties of obtaining supplies, especially in amounts required. This scarcity of supplies was especially marked in relation to glassware and to smaller animals used for test purposes.

Antiserums.

However, the Division has been unusually successful with antipneumococcus and antimeningococcus serum. Practically every horse that has been started for production of these antiserums has reached the producing stage and yielded a good supply of product. We have been unusually successful both in quantity and quality. No samples have failed to pass Official Federal tests and the clinical potency of these products, especially of antimeningococcus serum, has been indicated by increased demands from many sources.

Amounts of Products.

The following table gives the amounts of the more important products:

PRODUCT	PRODUCED IN C. C.	
	1917	1918
Diphtheria Toxin.....	1,205,750	725,000
Diphtheria Antitoxin Plasma.....	1,515,300	1,790,000
Tetanus Toxin.....	364,650	281,150
Tetanus Antitoxin Plasma and Serum.....	415,000	420,100
Antimeningitis Serum.....	451,050	1,516,265
Antipneumococcus Serum.....	133,900	873,575
Antigonococcus Serum.....	12,400	None
Normal Horse Serum.....	205,700	231,625
Pertussis Vaccine.....	126,600	78,180
Streptococcus Vaccine.....	8,500	23,600
Pneumococcus Vaccine.....	10,800	5,800
Staphylococcus Vaccine.....	19,200	25,000
Gonococcus Vaccine.....	35,005	46,000
Typhoid Vaccine.....	161,300	117,700
Mallein Vaccine.....	1,600	None
Eye Mallein.....	1,000	None
Tuberculin Vaccine.....	3,150	5,916
Smallpox Vaccine.....	7,829	10,445
Meningococcus Vaccine.....	4,370	6,299
Gonococcus Antigen.....	490	1,000

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The demands of the War have continued to absorb every particle of Tentaus Antitoxin as well as of Antimeningitis Serum and of Pneumococcus Serum that could be spared.

Cowpox Vaccine.

The vacuum method of filling a large number of capillary tubes at one time has been tried and found successful. This method lessens somewhat the possibility of contamination of virus while filling tubes, and is more rapid than filling each tube singly. With the new method 2,000 to 3,000 tubes may be filled in ten to fifteen minutes. Although not all tubes are perfect in result and some must be rejected, the slight loss of virus is compensated for by the vast saving of time when necessary to produce large numbers of tubes in a short period. As these tubes have already been sealed at one end before filling, it is a simple matter to seal the other end. To supply small numbers of tubes, however, the older method is still used, as it is more economical in both time and virus.

A new method of packing vials for distribution has been introduced. This consists of a neat box which holds one vial containing enough virus for ten vaccinations together with necessary needles and applicators and a folder of directions.

The introduction of a new system of filing orders has greatly facilitated the work. Also bulk virus cards for both commercial and seed virus show at a glance the amount of virus available for use at any time. These supplant unwieldy records kept formerly in large volumes.

The increase in the amount of virus prepared and disbursed during 1918, as shown in accompanying table, was due primarily to war conditions. These augmented the demand for virus and necessitated keeping a large reserve supply than usual to meet any sudden emergency.

VACCINE LABORATORY
COMPARATIVE REPORT FOR 1918

Year	Calves Vac.	Calves Coll.	C.C. Finished	Caps Filled	Disbursements				Destroyed	
					Cap. Tubes	Small Vials	Large Vials	C.C.	C.C. (Bulk)	Cap Tubes
1918.....	46	44	10,330	242,724	250,916	4,500	2,067	7,469	old virus 2,472	13,999
1917.....	28	28	7,849	195,006	194,310	4,246	2,344	6,529	0	21,668
1916.....	26	26	7,810	150,688	154,623	4,609	2,427	5,682	0	23,936
1915.....	13	13	4,307	199,502	195,605	3,719	2,153	5,893	0	38,369

Rabies Work.

This work is divided into three parts, (1) the production of rabies vaccine (Pasteur treatment), (2) diagnosis of rabies, (3) consultation in conjunction with Bureau of Preventable Diseases in regard to treatment.

BUREAU OF LABORATORIES

The Department furnished treatments for 466 persons during 1918, located as follows:

City of New York.....	185
State of New York (exclusive N. Y. City).....	141
New Jersey.....	107
Connecticut	15
Rhode Island.....	4
Massachusetts	8
New Hampshire.....	1
Pennsylvania	4
Virginia	1
	<hr/>
	466

In the New York City cases the biting dogs were classified as follows:

Rabid—proved by microscopic examination.....	25
Stray dogs.....	91
Negative—proved by animal inoculation.....	27
—proved by observation.....	42

Of the remaining 281 cases the larger groups were: Buffalo 30, Rochester 38, Schenectady 24, Jersey City 30, Newark 46.

In Newark most of the cases were due to one rabid dog which ran through the streets and bit 40 people before being shot. Of these, 37 were treated through this Division. This is the largest number of cases, all bitten by one dog, for whom treatment has been furnished in the history of the Division.

As will be seen in the accompanying table, no deaths occurred.

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STATISTICS OF PATIENTS RECEIVING PASTEUR ANTIRABIC TREATMENT, 1913 TO 1918.

Patients treated less than one week, pending diagnosis in biting animal, or refusing to continue after less than one week's treatment, are not included. Mortality statistics are based on number of persons bitten by rabid animals and not on total number treated.

Years	PATIENTS TREATED.	Biting Animal Proved Rabid.	Percentage of Positive Cases.	MORTALITY.			
				GROSS.		CORRECTED.	
				Total Rabies Deaths Among Patients Treated.	Percentage of Cases in Which Biting Animal Was Rabid.	Deaths, 15 Days or More After End of Treatment.	Percentage of Cases in Which Biting Animal Was Rabid.
1918	In City.....	25	17.2	0	0.0000	0	0.0000
	Out of City.....	230	85.1	0	0.0000	0	0.0000
	Total.....	255	61.6	0	0.0000	0	0.0000
1917	In City.....	48	27.4	0	0.0000	0	0.0000
	Out of City.....	230	96.2	1	0.0043	1	0.0043
	Total.....	278	61.8	1	0.0035	1	0.0035
1916	*In City.....	40	34.8	***1	0.025	0	0
	Out of City.....	114	87.8	0	none	0	0
	Total.....	154	63.0	1	0.025	0	0
1915	In City.....	124	56.2	0	0.000	0	0
	Out of City.....	164	79.6	1	0.006	0	0
	Total.....	288	67.6	1	0.0034	0	0
1914	In City.....	355	69.7	2	0.0056	1	0.0028
	**Out of City.....	258	76.2	1	0.0038	0	none
	Total.....	613	71.9	3	0.00489	1	0.00163
1913	In City.....	373	60.6	3	0.008	1	0.0027
	Out of City.....	359	80.0	1	0.0028	0	none
	Total.....	732	75.0	4	0.00546	1	0.00136
	Grand Total (6 yrs.)	3,327	69.7	10	0.00484	3	0.00145

*In addition, Treated less than 1 week and treatment discontinued.

1916 In City, 57—In none of these were biting animals proven rabid.

Out of City, 7—In five of these biting animals were proven rabid.

**1914 Muzzling ordinance adopted in July and put in operation in Autumn.

1915 Muzzling ordinance adopted in July and put in operation in Autumn.

1916 Muzzling ordinance in force. Note reduction of number of patients requiring Pasteur Treatment in City.

1917 Muzzling ordinance in force. Note reduction of number of patients requiring Pasteur Treatment in City.

***Completed treatment September 1, 1916. Died of Rabies March 9 1917.

Patients refused to continue treatment after 1 to 3 days.

BUREAU OF LABORATORIES

DIVISION OF APPLIED THERAPY.

The work on Meningitis shows a moderate increase over 1917 in total of new cases seen, being 403 as against 385. The accompanying chart shows the variation in total cases, and also in number of cases of epidemic cerebro spinal meningitis, poliomyelitis and tuberculous meningitis since 1913. The very short rise in number of polio cases in 1916, the decrease in 1917, continuing in 1918 will be noted. The cases of tuberculous meningitis show an orderly increase, running approximately parallel with total of new cases. The cases of E. C. S. M., however, show a rather sharp increase in 1918, being nearly double the number in any previous year. The total number of cases is not, of course, the best index of amount of work done but rather the total number of consultations. It was impossible, however, to include all these data on a chart, without making it inconveniently large. In 1917, the number of consultations and visits were 771. The number this year, 1,201, would have been considerably increased had the car not been taken from us in the Fall. This prevented following up over 100 cured cases of meningitis. We hope to be able to do this later as there seems a real need for reliable information as to the late sequellae of meningitis.

During the year, some material has been worked up and published. The final paper on poliomyelitis was published in the September number of "Archives of Internal Medicine," and reprints are ready for distribution. An article, "Treatment of Epidemic Meningitis," was published in the September "Monthly Bulletin" of the Department, and "Case Histories in Meningitis" was published in July number of "Clinics of North America." A study of epidemic meningitis in children under a year of age is to be published in "International Clinics."

Work has been done on a chapter on epidemic meningitis for "A System of Pediatrics," edited by Abt, but publication of the "System" has been delayed on account of the War. Work is now being done on a study of meningeal hemorrhage and also on a monograph on spinal fluids.

	CASES	NEW CASES	LUMBAR PUNCTURE	INOC.
Epidemic Cerebro-Spinal Meningitis.....	888	143	878	818
Tubercular Meningitis.....	120	111	119	0
Influenzal Meningitis.....	26	4	26	26
Pneumococcus Meningitis.....	9	3	9	9
Streptococcus Meningitis.....	7	2	7	7
Staphylococcus Meningitis.....	5	2	5	5
Syphilitic Meningitis.....	1	1	1	0
Poliomyelitis.....	24	24	24	0
Other Diseases.....	86	78	80	20
Meningism with Pneumonia.....	35	35	35	0
Total.....	1,201	403	1,189	950

Spinal fluids examined, 1,220.

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DIVISION OF SPECIAL INVESTIGATIONS.

Influenza. In studying the etiology of the pandemic of 1918, the Bureau of Laboratories left out the question of possibility of a filterable virus being the initiating cause of the epidemic. It confined itself to a study of the micro-organisms present in the naso-pharynx and blood of living cases and in entire respiratory tract of autopsy cases, paying particular attention to presence of those organisms that were thought by others to be the possible initiating cause. As a result of our studies, we found the influenza bacillus in a higher percentage of cases than any other one organism. Taking into consideration the fact that influenza bacilli are very frequently present as secondary infections in a number of diseases, the higher percentage of cases showing influenza bacilli was not sufficient proof that this organism was the initiating cause of the pandemic.

In order to prove that the influenza bacillus was the initiating cause of the pandemic we had to show from serum reactions that a single strain of influenza bacillus was present in the cases of this pandemic. We are carrying on three groups of serum reactions; the agglutination reaction, the complement fixation reaction, and the reaction of protective antibodies. The results obtained so far from the agglutination reaction show that influenza bacilli from the different cases are not all one strain. This throws doubt upon the hypothesis that the influenza bacillus is the cause of the pandemic. We are not yet ready to report on results from the other two groups of antibodies.

Meningococcus Carries. During the epidemic of meningitis we worked out a specially prepared medium and a definite technique by which we can readily recognize the meningococcus colony, from fresh cultures taken from the naso-pharynx. The efficiency of each batch of medium was tested by making dilution plates with freshly isolated strains and capricious stock strains and streaking or covering the entire surface with a loopful of a known suspension of different dilutions. We tried many varieties of mediums adding various enrichments, etc., comparing number of colonies, size, etc., and found that the vitamin agar (3rd method) and blood gave large characteristic colonies in from fourteen to eighteen hours. The following advantages were gained by these experiments. 1. That we could discontinue use of ascitic fluid which, since we have to depend upon outsiders to furnish it, is always questionable as to its sterility and requires repeated tests. 2. No glucose required. 3. Requires only half the time. 4. An actual saving of two-thirds amount of medium. 5. The production of an ideal medium for primary cultivation of meningococcus.

Best Method of Keeping Stock Meningococcus Strains. We have, in stock, over three hundred different strains of meningococcus, one hundred of which must be kept in duplicate for immunizing horses for antimeningococcus serum. These strains must be kept on hand and ready to supply Otisville or other workers throughout the department. The other two hundred are strains which we have isolated from recent outbreaks including many contacts. We have

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isolated these strains for purpose of grouping them according to virulence, agglutinins, and complement fixation, in order to establish the relationship of the common lodger in the naso-pharynx to the cocci found in acute cases, and to select the ones that will produce the highest titre for curative purposes. The problem of keeping all of these strains viable suggested certain experiments to cut, if possible, the cost, labor and time required for their upkeep. A number of experiments were carried out and results show that we can transplant, seal and keep viable the meningococcus for one year in over eighty-three per cent. of the strains, probably in one hundred per cent.

Antipneumococcus Serum. An investigation carried out at Otisville on relationship of the agglutinin and protective antibody contained in pneumococcus serum showed a marked difference in the curves of these two antibodies during period of immunization. The agglutinins were highest in the early weeks before the protective antibodies had fully developed.

Antimeningococcus Serum. An investigation of the relative value of various serological tests has been under way. Thus far no definite conclusions can be drawn further than that a serum having the highest possible content for various antibodies is probably the most satisfactory for general therapeutic use. A problem fundamental to production of a polyvalent antimeningococcus serum is also under investigation. This comprises a study of classification of the meningococci based on serological reactions. A study of samples of antimeningococcus serum stored in refrigerator for periods up to three years has shown little evidence of deterioration of their antibody content.

Toxin-Antitoxin Mixtures. A study of the limitations in standardization of the toxin-antitoxin mixture has so far shown that the strongest toxin available should be used, as the apparent reaction in humans is due to the general proteins and not to the toxin.

Determination of Type of Pneumococcus. The rapid coagulation method for determination of pneumococcus in the sputum from primary lobar pneumonia due to types I, II and III has been more successful than anticipated. From three-quarters or more of the samples of sputum submitted from cases of pneumonia due to the fixed types, have been satisfactorily diagnosed by this short method, and report to the physician was made possible within fifteen minutes or half hour after receipt of specimen. It is probable that the percentage of positive reactions of sputums from pneumonias due to fixed types of pneumococci could be increased if more attention were paid to care of samples which are to be submitted.

Complement Value of Guinea Pig Serum. In testing guinea-pig-serums to determine their complement value, we found that the serums of individual pigs vary in fixability, and in hemolytic activity, and that this property must be considered in deciding the dose of complement to be used in tests. Throughout the year, we have successfully applied this point of technique to the complement-

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fixation-standardization of therapeutic meningococcus horse serums, and to experimental work on tuberculosis and influenza.

Epidemic Meningitis in Children Under a Year of Age. The study of cases of epidemic meningitis in children under a year of age shows the difficulty in making diagnosis in patients of this age, the difficulties in treatment and some reasons for the high mortality.

Diphtheria Immunization. Three years have elapsed since the children in various institutions were immunized with toxin-antitoxin injections. These have been recently retested with most interesting results.

It was found that in practically all instances they retained their immunity to diphtheria, and even if it diminished during the next few years this gives a certainty that active immunization is thoroughly worth while. In these institutions, several thousand children that gave negative Schick tests at first injection have been shown to retain their immunity. In a few institutions, some two to five per cent. have apparently changed, but it is believed that this is due to careless methods in keeping records. It can certainly be stated that a child or adult once found immune is probably assured of immunity for the duration of life. Hundreds of children not immune to diphtheria have been injected on their attendance at infant milk stations. Nearly a thousand infants have been given three immunizing injections during their first week of life, without any deleterious effects. It is hoped, early in 1919, to discover whether at this early age these injections confer active immunity.

DIPHTHERIA IMMUNIZATION

GROUP	NO. OF GROUPS	NO. CHILDREN SCHICK TESTED	NO. DOSES OF TOXIN-ANTITOXIN GIVEN
Baby Health Stations.....	10	1,100	2,686
Institutions.....	13	9,694	*3,713
Total Numbers.....	23	10,794	6,399

*This represents number of doses given in eight institutions. There still remain five institutions to immunize.

Detection of Carriers of Dysentery Bacilli. A rapid method of handling stools was developed which gave very satisfactory results.

Disinfection of "Centadrink" Fountains. An investigation was made of methods in use at "Centadrink" fountains and as to the value of solutions of chloride of lime used as disinfectants of drinking glasses. There was found an absolute lack of all proper precautions against danger of infection at the fountains, and as conducted, they constituted a menace to public health. The chloride of lime solutions, supposed to be used to disinfect glasses, were either not provided at fountains inspected, or their use was habitually disregarded. Specimens of solutions found in some of the "Centadrink" tanks were tested,

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and found to contain too low a percentage of chlorine to have any reliable disinfectant action when used for the short time limit customary in a routine disinfection of drinking glasses.

Tests have been made in the laboratory to ascertain disinfectant value of various saturated solutions of chloride of lime, and of chlorine gas in water, and also as to rate of deterioration in these solutions kept in open and closed vessels. It was found that such solutions, containing even less than one-half per cent. available chlorine, and used with a time limit of five seconds, have a very efficient disinfecting action on the surface of drinking glasses heavily infected with bacteria. Portions of these solutions exposed in open vessels to the air of laboratory have been found to retain disinfectant properties sufficiently to be effective for periods varying from 11 to 25 days.

Media Tests. As the available supply of nutrose is nearly exhausted, tests have been made of a "substitute nutrose" composed of a mixture of peanut flour 94 parts, casien 5 parts and sodium carbonate 1 part, as suggested by R. L. McKenzie Wallis in 1917; and also as to possibility of making Endo medium without nutrose. Typhoid and colon bacilli from stock cultures and from stools have been grown on Endo medium made with substitute nutrose, compared with same strains grown on Endo made with regular nutrose and on Endo made with no nutrose. There was practically no difference in number and appearance of colonies on the three kinds of media.

Scurvy; Its Nature and Prevention. Scurvy is primarily the result of a deficiency in diet, to a lack of so-called "vitamines." Orange juice, a most potent antiscorbutic, retains this power even after being boiled, it loses some value, however, after aging. Its antiscorbutic property is not due to its salt content, as an "artificial orange juice" made up of its salt constituents fails to act as an antiscorbutic. It was found also that orange juice, after boiling and neutralization or slight alkalization, may be given with perfect safety intravenously. In this way a very rapid method of curing this disorder is offered in far advanced cases.

Several samples of dehydrated vegetables were tested and found to have lost almost all antiscorbutic power. It is possible, however, that better methods of dehydration can be devised, which will prevent this deterioration. Dried prunes were found to have little virtue. Orange peel, from which a decoction has been made, proved serviceable as an antiscorbutic for infants. A very excellent antiscorbutic for bottle-fed infants was found in canned tomato. This food stuff was tested thoroughly on guinea pigs and later used on a large scale in an institution for infants. It can be given in small doses to infants under one month of age, and in quantity of one ounce or over to those a few months old. In view of its availability and comparative low cost, this antiscorbutic can be highly recommended to replace orange juice in the dietary of bottle-fed infants.

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Chicken-pox. A study of chicken-pox was carried out, communicated in a paper entitled "A Protective Therapy for Varicella, and a Consideration of Its Pathogenesis." In this, it was shown that virus of this disease is contained in the vesicles, and that if injected in small amounts intravenously, it is able to confer immunity to this disease. Also, that chicken-pox is probably not communicated through the skin or mucous membranes of the nose and mouth, but must enter by another path.

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No single factor was so necessary to successful prosecution of the war as an adequate and wholesome food supply.

While the part played by the Department was comparatively small, nevertheless, during the emergency, it was ever ready to assist with all its power. This bureau on many occasions assisted in gathering information for the Federal Food Administration, and representatives of the bureau were consulted and their advice requested in handling some of its problems.

DIVISION OF FOOD INSPECTION.

The functions of this division consisted of inspection and supervision of all food establishments in the city, with exception of milk pasteurizing plants, dairies producing milk, as well as inspection of cattle slaughter houses under municipal inspection.

DIVISION OF MILK INSPECTION.

The functions of this division consisted of supervision of milk supply of the city and enforcement of regulations of the Board of Health relative to production, transportation, care and sale of milk. This includes inspection of dairies and creameries shipping milk to the city.

DIVISION OF DRUG INSPECTION.

The function of this division was supervision of the quality and drugs manufactured and sold in the city and sanitary conditions under which they were handled.

CHEMICAL LABORATORY.

This laboratory analyzed samples of food and drugs taken by inspectors of various divisions.

CLERICAL STAFF.

The Clerical staff of the Bureau was so controlled that practically all clerical work of the respective divisions was handled in one central office.

This form of organization continued until October, when offices of the Bureau were established in the respective boroughs. An inspector was placed in charge of each office and the functions of the Bureau were so arranged as to place supervision of all food activities in the respective boroughs under his supervision and control, with the exception of milk supply, oyster supply, sale of fraudulent patent and proprietary medicines, and chemical laboratory, which were left under central control.

The various functions exercised by the former divisions were practically left intact, and each borough office maintained the same form of organization as prevailed before the change was made.

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General Scope of Work and Factors Considered in Distribution of Functions of Bureau.

The Bureau of Food and Drugs, as already indicated, is charged with supervision over the food and drug supply of the city. In administration of its work the general idea is to place emphasis on the more important phases of food and drug supply.

In the control of a municipal food supply, there are five important units to consider, namely:

Inspection of food in its raw state at points of entry, such as railroad terminals, piers and wholesale markets.

Inspection of factories where food products are manufactured from raw materials.

Inspection of bakeries, restaurants and hotels.

Exclusion of diseased food handlers.

Inspection of retail stores.

Inspection of food at these five points means the supervision of practically 75,000 different food establishments scattered throughout the Greater City. With a limited force to cover this large territory, the controlling feature has been to place emphasis on the first four phases. By strict supervision of food as it is received in the city, it has been possible to condemn and divert a considerable amount of unwholesome foodstuffs, which otherwise might have been scattered throughout various retail establishments.

During the year 16,919,676 lbs. of unwholesome food were condemned at the terminals. The approximate value of which is set at \$1,847,337.37, being computed from market prices at time of condemnation. These figures only indicate actual condemnation of unwholesome food. It does not show the millions of pounds of foodstuffs which have been saved and diverted to animal or technical purposes as the result of inspection at terminals. Where food arrives in which a certain percentage is unwholesome, it is embargoed and the dealer is required to overhaul same before the foodstuffs are permitted into the commerce of the city, thus checking further loss.

Factory Inspection.

By inspection of food at factories it is possible to better protect the people of the city, so that the Department is in a position to know the quality of materials used in manufacture of food products sent to various retail establishments.

Special attention has been given to sanitary conditions under which ice-cream factories were operated, emphasis being placed upon methods of cleansing utensils used. Surveys were also made of factories where ketchup, jellies and jams are manufactured. As a result 117,020 pounds of food were condemned.

This type of work is really one of the most important features of food

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inspection, because at these premises raw products used in manufacture of food products can be inspected to determine fitness for human consumption. Frequently the raw products, while unfit for consumption before manufacture, are so processed as to render it impossible to detect in the finished product that the raw product was not in good condition and should not have been used. Examples found in Brooklyn were as follows:

In a large factory manufacturing jam and jellies 1,160 lbs. of unsound prunes were found which were being washed in a saline solution preparatory to being used in manufacture of glazed prunes.

In a candy factory 1,650 lbs. of wormy scrap candy were found, 500 lbs. of which were in process of manufacture. This product was to be sold to a dealer who caters to pushcart trade.

Inspection of another candy factory revealed a large quantity of dried raisins which contained live worms, the inspector observing at the time that an employee placed the unfit fruit in a batter of melted chocolate. This product was being put up in form of chocolate bars, to be sold to retail trade at two cents a bar. Prosecution was instituted and the court imposed a fine of \$100 with comment that were it not for the fact that defendant had discontinued manufacture of candy, the court would have imposed the maximum penalty.

Bakery and Restaurant Inspection.

Special attention was also given to condition in which bakeries and restaurants were operated. Both require a permit from the Board of Health. Frequent inspections were made, and, in addition to noting sanitary conditions, the quality of food prepared was inspected. 24,541 inspections were made of bakeries, and 35,517 of restaurants.

Retail Inspection.

The inspection of retail establishments is largely the supervision of their cleanliness. This feature, while not as important as the first four, cannot be overlooked, and as there are over 40,000 retail food establishments of all kinds in the city, it is necessary to devote considerable time to inspection of quality of the food sold and sanitary conditions under which they are operated.

Experience has shown that violations found in retail food establishments are, in the majority of instances, due to failure to understand the regulations of the Department. With this in view, it is the policy to first endeavor to thoroughly instruct operators of these establishments as to just what the Department requires. Where violations exist, they are served with copies of violations found and reinspections are made. If, after repeated inspection, violations are not removed, prosecution is instituted. Drastic action is only resorted to after it is determined that the storekeeper does not intend to comply with the regulations unless forced to do so. While 217,650 inspections were made of retail

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establishments, it was necessary to institute prosecution in only 619 instances for failure to operate in a sanitary condition.

General Policy in Regard to Food Inspection.

While the primary function of the Bureau is to prevent sale of unwholesome food, it has been the policy to endeavor to conserve food and eliminate waste. Working in cooperation with public-spirited citizens, this Bureau was instrumental in having the Board of Aldermen adopt an ordinance making it a misdemeanor to wilfully destroy wholesome food. It has also been the policy, wherever condemnations were made of large quantities of food, to endeavor to find the reason for spoilage and to notify responsible parties and urge that conditions which brought about the spoilage be remedied. As a result, many communications have been sent to shippers of food in practically every state in the Union, to officials of railroads transporting food and to various state officials.

Continuing the practice of former years, to have condemned food deflected into other channels, which the dealer would not overhaul because of financial loss, the Department diverted to the Mayor's Committee on Food 45,549 lbs. of wholesome food. In a number of instances food which had been abandoned was diverted and sent to hospitals and public institutions where the wholesome food was sorted from the unwholesome under supervision of inspectors of the Department and the wholesome food used. Thousands of pounds of food, which, in the past had been sent to the dump, were diverted for use as animal feed.

During the year the Bureau has worked in close harmony with Federal and State officials and has cooperated with officials of the Federal Food Board. Surveys have been made for the Federal Food Administration and this Bureau has supplied the Federal Food Board with considerable information concerning the food supply of this city.

Working in cooperation with the Bureau of Chemistry, this Bureau has referred a number of violations of the Federal Food and Drug Act to it for attention. Also, the Bureau of Chemistry in many instances has called attention where unwholesome foods have been sent to this city for sale. As a result of such cooperation, this Bureau has prevented sale of thousands of pounds of unwholesome food products.

Changes in Sanitary Code.

During the year the following changes in the Sanitary Code were recommended by this Bureau:

Poultry Slaughter Houses. The regulation requiring consent of property owners within a radius of 100' of proposed poultry slaughter house was found after enforcement to be unsatisfactory in that property owners frequently would withhold their consent for monetary considerations. In view of this and because

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of the Zoning Regulations which prohibited erection of a poultry slaughter house in a residential or business district the following amendment to this regulation was recommended, and was adopted by the Board of Health on July 23.

AMENDMENT.

Regulations 1. Approval of Site: Plans and Specifications: Permits.—No permit to conduct a poultry slaughter house will be issued by the Board of Health unless the site and the plans and specifications of the proposed slaughter house shall have been first approved by said Board, in the order and subject to the conditions herein specified.

(a) **Approval of Site:** An application for the approval of site upon which it is proposed to erect and conduct a poultry slaughter house shall be made by the owner or owners thereof upon official blank forms furnished for such purpose by the Bureau of Food and Drugs, accompanied by evidence of ownership, or right of possession, in the form of a deed or bill of sale. The applicant shall also submit a map or sketch upon which shall appear the location and character of each building within a radius of one hundred (100) feet of the proposed site. Upon receipt of such application the Director of the Bureau of Food and Drugs shall verify the evidence of ownership, right of possession, maps, sketches, and other data submitted, and make and forward an appropriate recommendation to the Board of Health in conformity with the provisions of sub-division (b) of this Regulation.

(b) The following rules shall govern the action of said Board in acting upon said applications: (1) If the proposed site is located within a Residence District or a Business District, as established by the Use District Map, and the Use District Designations and the Map Designation Rules which accompany said Use District Map, adopted by the Board of Estimate and Apportionment of The City of New York on July 25th, 1916, under and by virtue of the provisions of The Building Zone Resolution, such application will be denied by the Board of Health. (2) If a church, school, library, hospital, sanitarium, or other public or private institution is located within a radius of one hundred (100) feet of the proposed site, such application will be denied by the Board of Health. (3) If a private dwelling, tenement house, or apartment house is located within twenty-five (25) feet of the boundary line of the lot, piece, or parcel of land upon which it is proposed to conduct a poultry slaughter house, the Board of Health will not grant any such application unless the owner or owners thereof shall have been given a reasonable opportunity to appear and be heard in opposition to the granting of such application by said Board.

(c) **Plans and Specifications.**—If the Board of Health approves a site for a poultry slaughter house, an application for the approval of the plans and specifications of the proposed poultry slaughter house shall be made by the owner or owners thereof, upon official forms furnished for such purpose by the Bureau of Food and Drugs. A copy of such plans and specifications shall accompany such application and shall be examined and approved or disapproved by the Director of the Bureau of Food and Drugs and thereafter submitted to the Board of Health for its consideration and action.

(d) **Permits.**—Applications for permits to conduct poultry slaughter houses shall be made upon official forms furnished for such purpose by the Bureau of Food and Drugs and shall be accompanied by documentary proof establishing the right of the applicant to possession, in the form of a deed or lease. Every such application shall be investigated by the Bureau of Food and Drugs and forwarded to the Board of Health, with appropriate recommendations by the Director of said Bureau, for its consideration and action. No application for a permit will be granted nor a permit issued unless the site and plans and specifications of the poultry slaughter house have first been approved by the said Board in accordance with the provisions of this Regulation.

Provided, however, the provisions of sub-divisions (a), (b) and (c) of this Regulation shall not apply to applications filed with or acted upon by the Board of Health prior to July 23d, 1918. (As amended by the Board of Health, July 23, 1918).

Milk and Milk Products.

On November 27 the Board of Health, upon recommendation of this Bureau, adopted the following definitions to be included in Section 1 of the Sanitary Code.

SECTION 1

Definitions

33. "Milk": the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained fifteen days before and five days after calving, or such longer period as may be necessary to render the milk practically colostrum-free.

34. "Skimmed-Milk": is clean, pure, healthy, wholesome and unadulterated milk, from which substantially all milk fat has been removed.

35. "Cream": is that portion of clean, pure, healthy, wholesome and unadulterated milk, rich in milk fat, which rises to the surface of milk on standing or is separated from it by centrifugal force.

36. "Condensed Milk, Evaporated Milk, or Concentrated Milk": is the product

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resulting from the evaporation of a considerable portion of the water from clean, pure, healthy, wholesome and unadulterated milk.

37. "Sweetened Condensed Milk, Sweetened Evaporated Milk, or Sweetened Concentrated Milk": is the product resulting from the evaporation of a considerable portion of water from clean, pure, healthy, wholesome and unadulterated milk, to which sugar (sucrose) has been added.

38. "Condensed Skimmed-Milk, Evaporated Skimmed-Milk, or Concentrated Skimmed-Milk": is the product resulting from the evaporation of a considerable portion of water from clean, pure, healthy, wholesome and unadulterated skimmed-milk.

39. "Sweetened Condensed Skimmed-Milk Evaporated Condensed Skimmed-Milk, or Concentrated Condensed Skimmed-Milk": is the product resulting from the evaporation of a considerable portion of water from clean, pure, healthy, wholesome and unadulterated skimmed-milk, to which sugar (sucrose) has been added.

40. "Dried-Milk": is the product resulting from the removal of the water from clean, pure, healthy, wholesome and unadulterated milk.

41. "Dried-Skimmed-Milk": is the product resulting from the removal of the water from clean, pure, healthy, wholesome and unadulterated skimmed-milk.

42. "Modified-Milk": is clean, pure, healthy, wholesome and unadulterated milk, which has been changed by the addition of water, sugar-of-milk, or other substance intended to render the milk suitable for infant feeding.

43. "Reconstituted-Milk": is a product which is mechanically and exclusively made from milk solids not fat, milk fats containing all the properties of milk fats in milk, and water, in appropriate proportions and having all the recognized characteristics of milk.

44. "Reconstituted-Cream": is a product which is mechanically and exclusively made from milk solids not fat, milk fats containing all the properties of milk fats in milk, and water, in appropriate proportions and having all the recognized characteristics of cream.

45. "Buttermilk": is the product that remains when butter is removed from clean, pure, healthy, wholesome and unadulterated milk or cream in the process of churning.

46. "Malted-Milk": is the product made by combining clean, pure, healthy, wholesome and unadulterated milk with the liquid separated from a mash of ground barley, malt and wheat flour, with or without the addition of sodium chloride, sodium bicarbonate and potassium bicarbonate, in such manner as to secure the full enzymic action of the malt extract and by removing water.

Reconstituted Milk and Reconstituted Cream.

In the early part of 1918 an application was made to the Board of Health for a permit to sell a product known as "Emulsified Milk," this product being made from powdered skim milk, fresh butter, water and then emulsified. After careful consideration, the Board of Health denied this application for reason that the term "Emulsified" did not properly describe the product. The purpose of placing this product upon the market was to provide an additional supply of wholesome milk product at a price less than was asked for normal milk. The Department of City Markets was interested in this proposition and after further consideration it was finally recommended that this product be sold as "Reconstituted Milk." On November 27 the Board of Health adopted two new sections to the Sanitary Code, which regulated the manufacture and sale of reconstituted milk and cream, and defined adulterated reconstituted-milk and reconstituted-cream as follows:

Sec. 174. **Reconstituted-Milk and Reconstituted-Cream; Sale Regulated.**—No reconstituted-milk or reconstituted-cream shall be brought into the City of New York, or manufactured, held, kept, sold or offered for sale at any place in said city without a permit therefor issued by the Board of Health or otherwise than in accordance with the terms of said permit and the regulations of said Board. (As adopted by the Board of Health, November 27, 1918.)

Sec. 175. **Adulterated Reconstituted-Milk and Reconstituted-Cream.**—No reconstituted-milk or reconstituted-cream which is adulterated, reduced or changed in any respect by the addition of water or other substances, shall be brought into the City of New York or held, kept, sold, or offered for sale, at any place in said city; nor shall any person, firm or corporation keep, have, or offer for sale in said city any such reconstituted-milk or reconstituted-cream.

Reconstituted-milk or reconstituted-cream in the possession of or held, kept or offered for sale by a dealer in food shall, *prima facie*, be deemed to be held, kept and offered for sale as human food.

The term "adulterated" shall be taken to mean and include:

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First—Reconstituted-milk containing more than eighty-eight and one-quarter per centum of water or fluids.

Second—Reconstituted-milk containing less than eleven and three-quarters per centum of milk solids.

Third—Reconstituted-milk containing less than eight and one-half per centum of solids not fat.

Fourth—Reconstituted-milk containing less than three and one-quarter per centum of fats.

Fifth—Reconstituted-cream which contains less than eighteen per centum of butter fat.

Sixth—Reconstituted-milk or reconstituted-cream made from ingredients which are rancid, impure, unwholesome, adulterated, unclean, contaminated, or otherwise unfit for human consumption.

Seventh—Reconstituted-milk or reconstituted-cream which has been diluted with water or any other fluid, or to which has been added, or into which has been introduced, any foreign substance whatever.

Eighth—Reconstituted-milk or reconstituted-cream, the temperature of which is higher than fifty degrees Fahrenheit, or which contains an excessive number of bacteria.

Ninth—Reconstituted-milk or reconstituted-cream which is produced in violation of the Regulations of the Board of Health. (As adopted by the Board of Health, November 27, 1918.)

Sec. 176. Bottles, Cans, and Other Receptacles for Holding Reconstituted-Milk and Reconstituted-Cream; Use Regulated and Restricted.—It shall be the duty of all persons having in their possession bottles, cans, or other receptacles containing reconstituted-milk or reconstituted-cream, which are used in the transportation or delivery or reconstituted-milk or reconstituted-cream, to clean or cause them to be cleaned immediately upon emptying.

No person shall use or cause or allow to be used any receptacle which is used in the transportation and delivery of reconstituted-milk or reconstituted-cream, for any purpose whatsoever other than the holding of reconstituted-milk or reconstituted-cream; nor shall any person receive or have in his possession any such receptacle which has not been washed after holding reconstituted-milk or reconstituted-cream, or which is unclean in any way. (As adopted by the Board of Health, November 27, 1918.)

Cold Storage Food.

On December 31 Section 78 of Sanitary Code was amended to conform to State Law as follows:

Sec. 78. Time that cold storage food may be kept. It shall hereafter be unlawful for any person, corporation or corporations, engaged in the business of cold storage warehousemen or refrigerating, or for any person or corporation placing food in a cold storage warehouse, to keep in storage for preservation or otherwise any kind of food or any article used for food a longer period than twelve calendar months. (As amended by the Board of Health Dec. 31, 1918.)

Food Standards.

The past year has again emphasized the need of food standards in this city in order to properly supervise the quality of food sold. At present the only standards adopted by the Department are those for milk and milk products. The absence of food standards has been a serious handicap to effective control. This is especially apparent in ice-cream and butter. As regards ice-cream, it has been found that the gelatin used in manufacture is of very poor grade and apparently mixed with glue. To prove this condition to satisfaction of the Court, so that conviction may be obtained, is practically impossible, in absence of any definite standards for food gelatin. The work of the year has, however, supplied the bureau with data on which standards could be adopted. The adoption is being pushed and it is expected that standards for ice-cream will be adopted in early part of 1919.

Exposure of Food on Street.

One of the most perplexing problems to handle is the exposure of food on street to contamination by dust, dirt and flies. In enforcement of laws govern-

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ing sale of food on street, the bureau has endeavored to prohibit sales of candy, bakery products, cut fruits and cut fish unless properly protected from contamination.

During the year 1,203 prosecutions were instituted and \$2,537.00 fines were collected. As a matter of fact, this bureau has for four or five years been waging a campaign against the sale of food on streets, not properly protected. The results have not been very gratifying and exposure of such food on streets are still prevalent. The Department has solicited aid of the courts and asked that they increase their fines. Some magistrates have co-operated to that extent, but there has not been a material improvement. A number of these street venders have provided glass covers, but even in these cases the difficulty has been to have the covers placed over their products at all times. For instance, the candy venders during the Summer will keep their covers raised to prevent candy from sweating. Another objection to sale of such food on street is that frequently the vender also operates a bootblack stand and will shine shoes and sell candy without cleansing the hands.

This Bureau is using every mean available to better these conditions. We have tried education by bringing venders into the Department and lecturing them as to reasons for properly covering their food and have endeavored by persuasive methods to enlist their co-operation. This has failed and then we have endeavored to obtain compliance by prosecution; this also has failed. The remedy, therefore, seem to be in prohibiting the sale of candies, cut fruits and bakery products on streets unless they are individually wrapped in some protective covering.

Cleansing of Utensils.

In the early summer and continuing later during the epidemic of Influenza, this Bureau devoted considerable attention to proper cleansing of all utensils used in serving food to the public. Special attention was given to cleansing of glasses at soda fountains. Thousands of prosecutions were instituted as a result, and practically all premises at which beverages are sold have provided proper facilities for cleansing of glasses, or have installed individual containers. The difficulty of enforcing the regulation requiring proper cleansing of glasses have been to compel operators to use facilities which they have provided as the result of activities of the department.

During the epidemic of Influenza, the Board of Health delegated to the Assistant Sanitary Superintendents of the respective boroughs, power to issue Board Orders against food dealers who were flagrant violators of the Sanitary Code, especially those sections regulating the cleansing of food utensils.

The Borough Chief of Manhattan submits the following report:

"From general information concerning the manner of infection there seems little doubt that the transmission of the disease from an infected to a healthy person through an improperly washed drinking utensil, is certainly a possibility.

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In view of this opinion, all inspectors were assigned to make a special investigation of all food establishments in their districts and to pay particular attention to ice-cream parlors, soda-water stands and such other places where soft drinks are served. This detail was to include a careful examination of methods employed by the operator of the establishment to determine if requirements of this department were being complied with.

Wherever flagrant violations were found, and the dealer made no apparent effort to comply with law, a summons was served. At beginning, the Magistrates did not view the situation in a proper light and failed to impose substantial fines. A communication was, therefore, forwarded to the Chief Magistrate, calling attention to the serious condition and requesting the imposition of proper fines, co-operation and assistance. This was productive of good results and met with hearty co-operation from many magistrates. Subsequent reinspections were made in establishments previously complained of, with the result that it was necessary to resort to enforcement of a Board Order, whereby the business would be declared a nuisance and serving of soft drinks immediately stopped. As result of this stringent measure, such Board Orders were enforced against sixty establishments.

These orders, it was found, were observed in every instance with exception of one, wherein the dealer deliberately continued to serve soft drinks. He was immediately served with a summons for appearance at Municipal Term Court and the Court, hearing the facts, imposed a fine of \$50.

In carrying out the above detail, concerning washing of glasses, the inspectors were also instructed to carefully note food exposed to contamination. In every instance, where a dealer was deliberately exposing food he was immediately served with a summons, and the facts brought to attention of the Court."

Prosecutions.

As has been indicated, it has been the policy of this Department only to prosecute after the food dealer has had every opportunity of familiarizing himself with the regulations. In instances, however, where adulterated or unwholesome food was offered for sale, immediate prosecution was instituted.

Five hundred and seventy prosecutions were made in instances where adulterated milk or cream was found. These resulted in \$7,479.00 fines being collected.

Thirty-five prosecutions were made where adulterated or misbranded food, other than milk, was offered for sale. These resulted in \$2,935.00 fines being collected.

Six hundred and ninety-five prosecutions were made where unwholesome, unsound and unfit food was offered for sale. These resulted in \$10,363.00 fines being collected.

One hundred and ninety-four prosecutions were instituted as result of

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finding unwholesome eggs being used either in manufacture of food or being offered for sale. These resulted in \$3,283.00 fines being collected.

The total prosecutions instituted by this Bureau for violations of various sections of Sanitary Code relating to food and drugs were 4,819, and resulted in \$40,498.00 fines being collected.

Oyster Inspection.

Supervision of the oyster supply has been extended so that oysters from all sources are sampled at least monthly. Where the scoring of oyster, which is determined, according to methods prescribed by U. S. Public Health Service, is found to be maintained above 50, steps are taken to have this supply excluded from sale in the city.

During latter part of the non-hibernating period a permanent detail was placed on Jamaica Bay. The inspector established headquarters within close proximity and was provided with a boat so that he could keep the oyster beds of this bay under constant supervision.

In supervision of the oyster supply, the Bureau established close co-operation with the Bureau of Chemistry of U. S. Department of Agriculture and was guided by their rulings. Close co-operation was also maintained with the Conservation Commission of the State of New York. Before a permit to sell oysters in the city would be recommended for approval, the dealer was required to furnish a certificate from the Conservation Commission if his oysters were grown in waters within the State of New York. If grown in another state, the dealer was required to furnish a certificate from the official body having jurisdiction over the oyster beds certifying to purity of the water in which the oysters were grown and that the oysters were permitted sale in their state. Before either of these sources would be approved, it was also ascertained whether the Bureau of Chemistry permitted shipment of such oysters in interstate commerce.

Meat Inspection.

All meat sold in the City of New York must be inspected at time of slaughter either by the Bureau of Animal Industry of United States Department of Agriculture or by representatives of this Bureau. In case of cattle slaughtered in the country without official inspection, such carcasses must be inspected immediately upon receipt in the city and cannot be offered for sale until inspected and passed by representatives of this Bureau.

During the year the following cattle were slaughtered at abattoirs under municipal inspection:

Cattle offered for slaughter.....	8,825
Cattle passed for food.....	8,680
Cattle condemned	145
Pounds condemned	890,962

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Twenty-three thousand seven hundred and sixty-four carcasses or parts thereof of country dressed cattle, sheep and swine were inspected.

As to sanitary conditions of the slaughter houses and stockyards, the Borough Chief of Manhattan, reported as follows:

"Special attention was given to cattle and hog slaughter houses in this borough. A number of instances were found where several establishments, through negligence, permitted offensive odors to escape to outer air, thereby creating a nuisance. There was little or no care observed in confining such odors and many other serious violations of requirements of this department were found, such as disconnected pipes, broken flooring, windows removed, doors not properly closed, opening in wall of tank houses. In every instance wherever improper conditions were found, Board Orders were issued."

"A survey was made of the New York Stockyards at 60th Street and 11th Avenue. Numerous violations of requirements of this department were found and the management seemingly made no effort whatever to maintain these yards in a satisfactory condition and I therefore cite the more flagrant violations.

"The cobble-paved floor surface of cattle pens and driveways were defective and depressed and could not be drained; floor surface was covered with an accumulation of offensive liquid and animal filth; the drainage system was covered with an accumulation of liquids and manure and manure was not removed, nor was means provided for properly flushing and cleansing the yards; the post-barriers of cattle pens were unclean and there was an accumulation of dirt and manure; in short it appeared that these yards did not receive attention, so far as the cleansing of them is concerned, for sometime prior to this survey. It was also found that the yards were being conducted without permit required by the Board of Health."

Immediate action was taken to have the operator place the yards in a clean and satisfactory condition, and these efforts at first were not met with proper spirit, so that it was finally necessary to threaten summary action before an attempt was made by the responsible persons to remove the violations. They subsequently changed their attitude and made every effort to clean these yards, with result that numerous carloads of manure were removed, and although the yards are not in a condition satisfactory to this Department, there has been considerable improvement, and it now appears that the operators are making every effort to have the yards conform with requirements.

Milk Inspection.

The regulations governing control of milk supply adopted in 1917 were enforced and found very effective. Dealers selling milk were required to comply with these regulations and where milk was found not to conform to same, such milk was excluded from sale in the city. As a result of activities of this

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Department, the milk supply was maintained at a very high standard, both as to sanitary and chemical quality.

During latter part of the year there was such a marked increase in price of milk that there was a decrease in consumption. This resulted in a "John Doe" investigation being instituted by the District Attorney of New York County. The Department of Health, through the Bureau of Food and Drugs, co-operated with the District Attorney and placed at his disposal such information as would facilitate this investigation which was being continued at close of the year.

While the primary function of the Department as regards milk supply is supervision as to its wholesomeness and safety for human consumption, the question of price is also of prime importance. If price is so high that the milk is out of reach of poorer classes, this condition will be reflected in the health of children of this city. For that reason, the Department is using every effort to assist in maintaining the cost of milk at a price within reach of all.

Checking of Veterinarians' Work.

For some time the physical examinations and tuberculin tests conducted upon cattle, producing milk for sale in this city, by a veterinarian at Galilee, Pa., and another at Brooklyn, Pa., had been under suspicion, it being felt that there were glaring irregularities in their work; therefore, in December, 1917, and January, 1918, in co-operation with officials of the New York State Department of Agriculture, certain cows passed by these veterinarians as being in good health and free from tuberculosis, were retested shortly after their arrival in this city, and a great percentage of them were found to be reactors, and upon post-mortem all showed either localized or generalized cases of tuberculosis. In case of both these men the State authorities had evidence that at time they were supposed to have conducted tuberculin tests of these cattle, they were not in the vicinity. The final result was that this Department refused to recognize any certificates or test charts signed by these veterinarians and local cattle dealers and dairymen in country districts have been so notified.

In May 134 cows at a dairy at Middle Village, Long Island, were subjected to a tuberculin test under supervision of representatives of this department. Twenty-seven reacted to this test, the results of which confirmed our veterinarian's report that some of the animals were apparently tubercular and that there was evidence that operator of the dairy had fraudulently changed the eartags in certain cows.

During the year, because of lack of proper identification, or other suspicious conditions, 412 animals were tested with tuberculin, either by the veterinarian in charge or under his direct supervision at various cow-sale stables and city dairies. Of this number, one hundred and ten reacted and eight were found suspicious.

The rules provide that all cattle producing milk, which, when pasteurized may be sold in the City of New York, must be physically examined by a com-

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petent veterinarian at least once each year. It is felt that some veterinarians doing this work make their examinations in a perfunctory manner, and, in many instances, submit false reports. For this reason considerable work has been done on checking the physical examination of cattle by veterinarians in country districts, and, as a result, the work of three of these, found to be absolutely worthless, has been rejected and re-examinations made in prescribed manner by other veterinarians.

Pasteurization of Milk.

In paying special attention to pasteurization of milk and milk products, it was again noted that in several instances dealers offered raw milk for sale under the label "Grade B Pasteurized Milk."

On January 30, a milk dealer at Middle Village, L. I., was fined \$500 for misbranding milk in this manner. This was the second fine of \$500 imposed upon the same dealer for same violation within one year. At the time he was fined for the most recent infraction of law, he was arraigned in six other cases involving sale of adulterated milk and pleaded guilty, but sentence was suspended. As a result of these persistent violations, his permit to sell milk and milk products in the city of New York was immediately revoked.

On February 15, a milk dealer in Woodhaven, L. I., was fined \$500 for misbranding raw milk as Grade B Pasteurized Milk. In this case clever work was done by inspectors. The pasteurizing apparatus, where this dealer was supposed to have his milk pasteurized, was sealed, unknown to him. His premises were then kept under observation, and it was noted that he delivered no milk to the pasteurizing plant. The inspectors testified also that by odor, taste and appearance, the milk was in raw condition at time offered for sale. The bacteriologist testified that because of extremely high bacterial content of twenty samples, and the presence of *b. coli* in very small portions of these samples, the results were indicative of raw milk. The magistrate was so impressed with the evidence that he imposed the fine mentioned.

On June 14, another milk dealer was fined \$1,000 for two violations of misbranding raw milk as Grade B Pasteurized Milk; however, in these two instances country milk inspectors telegraphed that the company was making shipments of raw milk labeled "Grade B Pasteurized Milk," and that a careful investigation at the plant disclosed that no coal was on the premises and that, as a result, the boiler and pasteurizing apparatus could not be operated.

In many instances country milk inspectors detected shipments of milk and cream which had been "flash" pasteurized and telegraphed or telephoned this information to the office. In all these cases the milk and cream was embargoed upon arrival in the city and was either permitted to be pasteurized under official supervision or diverted for manufacturing purposes. In this respect 80,498 quarts of milk and 10,520 quarts of cream were involved.

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Typhoid Fever.

On April 12, all shipments of milk and cream from a plant at Gravesville, New York, were excluded on recommendation of the Bureau of Preventable Diseases for reason that in six cases of typhoid fever among residents of a particular section of the city, it was found that the common supply of milk was the plant at Gravesville, New York. Upon investigation by the supervising milk inspector at this plant it was found that one of the employees had been sick for a short time with, what had been diagnosed as "diarrhoeal bowel trouble" by the local physician. Subsequently his case was diagnosed to be typhoid. It was remarkable to presume that while ill and employed at the plant he had infected the milk and caused typhoid infection in the city. This man was not permitted to resume work until fecal specimens obtained from him were found negative for typhoid on two consecutive occasions.

During the year, at request of the Director of Bureau of Preventable Diseases, shipment from Pierrepont Manor, N. Y., Cato, N. Y., New Haven, New York, and Nicholson, Pa., were excluded because of suspected typhoid fever infection. Careful investigations were conducted at all these locations, but nothing which would warrant belief that typhoid had been contracted, through using milk from these sources, could be found. However, because of continued presence of *b. coli* and other suspicious conditions of water in use at Pierrepont Manor, shipments of milk were not permitted to be resumed until a new source had been provided. At the Cato, N. Y., plant, the water supply is still under suspicion and the operator has not been permitted to resume process of pasteurization. At Brinckerhoff, N. Y., it was found during warm season that water was being obtained temporarily from a creek, which was obviously contaminated by pasture and privy drainage. As a safeguard against typhoid and other similar diseases, all shipments from the plant were excluded and order enforced until a new well providing a sufficient supply of pure water was driven.

Milk Surveys.

At intervals of approximately thirty days, careful surveys of the amount of milk and milk products coming into the city for sale and manufacture were made. The average daily amount during the year approximates 1,800,000 quarts, the maximum amount having been received during flush periods in June and early part of July.

Surveys were also made at the various railroad terminals in New Jersey and in this city during July, August and September, to determine the manner in which milk arrives on milk trains, how iced, how cared for on platforms, temperature, etc. It was found in great majority of cases that milk was very well iced while en route to the city, and that while being transported from terminals to distribution depots, stores, restaurants and hotels, it was properly iced and in most instances covered with canvas. However, as noted in previous

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years, it was the practice of some dealers to leave milk on platforms for hours uniced and uncovered, thereby permitting temperature to rise and bacterial content to increase. Upon calling these deficiencies to attention of the dealers, co-operation was received and increased efforts made to eliminate this bad feature; however, it was claimed by many dealers that the irregularity of arrival of milk trains made it practically impossible to remove the milk from all platforms immediately after its arrival. This complaint was taken up with several milk agents who promised to do what they could in the matter. Their attention was also called to the fact that many railroad employees were appropriating ice which covered the milk of dealers in milk cars for their own use, and would not permit agents of these dealers to place same upon cans and boxes when loaded on the tracks unless they were recompensed. This brought about a condition which was objectionable, in that drivers refused to pay for ice which they rightfully claimed as their own and therefore were compelled, unless they carried ice with them from their depots and pasteurizing plants, to transport their load of milk to distribution points uniced. Some relief in this respect was afforded, but the improvement was provided practically entirely by the dealers, as the petty practice of railroad employees continued as openly as ever.

During the influenza epidemic, special attention was given to the presence of this disease among milk handlers on dairy farms and in creameries and pasteurizing plants in country districts. This was particularly necessary in those locations for reason that services of doctors and nurses were, in many instances, unobtainable. Where it was found that employees in milk plants were apparently suffering from influenza, they were ordered to discontinue work until properly examined by a physician, and a certificate from him placed on file at the plant. At several plants the epidemic depleted the working forces, and made it necessary at certain pasteurizing plants either to ship the milk to be pasteurized in the City of New York or to discontinue shipments entirely.

At the peak of the epidemic, shipments of milk and milk products were excluded from plants located at Alder Creek, East Steuben, and Remsen, N. Y., for reason that it was found at each plant that several employees suffering with influenza were actually engaged in handling the milk.

Cost of Milk Production.

About the first of December, Inspectors made very careful investigations and gathered complete data at six dairy farms for the purpose of obtaining, if possible, an index to cost of producing milk on the average dairy farm shipping to the city. Every possible expense entailed in producing milk was included in calculations. It was determined that average cost of producing one quart of milk during July (the season during which cost was considered lowest) at these six farms was \$.02446, and during December (the period during which production of milk costs most) it was \$.0644.

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It is true that figures obtained at six farms could not properly be used as a basis for estimating average cost at 40,000 farms, but the difficulty in determining accurately the cost of milk production may be realized when it is found that few farmers keep reliable records of receipts and expenditures in connection with their business. There is reason to believe, however, that at existing milk prices the industrious dairyman is prospering in the business of producing milk for sale in the city of New York.

Denatured Milk.

In keeping with the world conservation movement, and following the policy of this Department, every effort was made to denature and destroy as little milk as possible, and, at same time, obtain compliance with regulations of the Department. A total of 3,405 quarts of milk represented all that was destroyed and this, in every instance, contained considerable visible dirt. All milk found offered for sale, which was in excess of temperature prescribed in regulations, or was being sold over the thirty-six and forty-eight hour limit respectively, was denatured with buttermilk and subsequently sold as one of the several by-products. During the year 217,120 quarts of milk and 19,200 quarts of cream were denatured in this manner.

Grading Milk Supply.

In an effort to have all milk sold in the city of New York comply fully and completely with requirements and standards of Grade A, Grade B or Grade C. Milk, the new procedure of reinspection for purpose of collecting additional samples for bacteriological examination has been followed, and it is felt that the intensive work has brought about betterment of the quality of milk supply. During the year ninety-seven sources of supply, of which nine were Grade A Pasteurized Milk, and seven Grade A Raw Milk, were degraded because upon bacteriological examination of samples collected from same, the content was found in excess of standards set for the respective grades. Before any such milk supply was degraded the Department determined the apparent cause of excessive bacteriological content, and therefore based its action on insanitary conditions existing at a plant, in addition to the excessive bacteria counts. Of these degraded sources ninety-four were resumed when, upon reinspection of plant from which the milk was shipped, it was found the insanitary conditions had been remedied or removed, and when, upon two or more successive samplings of product, the bacteriological standards were found complied with.

At twenty-eight plants the conditions were found so unsatisfactory, and regulations of this Department violated to such an extent, that the milk and milk products handled in same were immediately excluded from sale in the city of New York under any designation whatsoever. Of this number twenty-two,

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upon reinspection, were found to have corrected insanitary conditions, and were, therefore, reapproved for shipment of milk for sale in this city.

Drug Inspection.

One of the most important functions of food and drug work is supervision of the quality of drugs and medicines sold in the city, and to see that prescriptions are properly filled by druggists.

This work has received considerable attention by this Bureau. Not only as to quality of drugs sold but the sanitary condition of drug stores has also been supervised. A number of them have been found operated in a particularly insanitary condition, and in a number of instances the facilities for properly cleansing utensils and bottles have been inadequate and there was much need for improvement.

During the year, 108 samples of rhubarb and soda were purchased by inspectors, and in 74 instances these were found below the standard prescribed in the National Formulary. The adulteration consisted principally of reduction in the amount of glycerin used in this preparation or substitution of sugar for glycerin.

Also during the year 47 prescriptions written by physicians of this department were left at drug stores. Upon analysis of same it was found that a number had not been properly filled. While in most instances it was due largely to carelessness and negligence of the dispenser, nevertheless, it illustrates need for such supervision and emphasizes the fact that druggists must exercise greater care in compounding prescriptions.

Owing to the fact that the validity of Section 117 of Sanitary Code, which regulates the sale of patent and proprietary medicines, was being determined before the Court of Appeals, enforcement of this section was temporarily withheld during this year. In latter part of the year the Court of Appeals rendered a decision to the effect that the provisions of Section 117, as originally adopted, was in its general purpose and effect well within the limits of police power of the Board of Health, but that the ordinance was invalid for exceeding the powers delegated to the Board of Health by including stores of merchandise owned by druggists and other dealers at time of its adoption who did not know the ingredients of their stock on hand and could not state them, thus working a practical forfeiture of their property. To meet the objection raised by the Court of Appeals, the Board of Health has amended this section so as to prohibit from its provisions, existing stores of merchandise in the hands of druggists or other retail dealers at time of adoption of this section.

The provisions of Section 116 of Sanitary Code relating to fraudulent claims made for medicines sold in the city were given considerable attention. The following cases illustrate work accomplished along these lines.

On June 7, Asbury O. Leonard was found guilty in the Court of Special Sessions of violating Section 116 of Sanitary Code. The defendant is manufacturer of a preparation called "Leonard's Ear Oil," which he claims effective

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in treatment of various diseased conditions of the ear, such as deafness, head noises, sunken drums and similar conditions. Upon analysis made by the Chemical Laboratory of this department, it was found that such preparation contained essentially the following:

Hydrocarbon Oil	41.96%
Oleic Acid	22.12%
Camphor	9.85%
Eucalyptol	11.07%
Ammonium Hydroxide	3.43%
Alcohol	12. %

Two ounces of this mixture sold for \$1.00. Upon the carton containing bottles of this preparation was the statement, "A glandular and massage oil for deafness, head noises, discharging, itching, scaly ears and hardened or excessive wax, and earache. Has had a successful sale since 1907. Rub it back of ears."

The Department contended that a mixture of the above substances would not be effective in treatment of deafness and that it was inconceivable that an oily substance rubbed in back of the ears could be of any possible benefit to a person suffering from deafness. Testimony to that effect was given by physicians of this Department and after a lengthy trial defendant was found "Guilty." A fine of \$250 or thirty days in city prison was imposed.

On October 28 in the Municipal Term, the French Medical Company was convicted of violating Section 116 of Sanitary Code in that they manufactured and sold a preparation called "Syloiodol" in which claims were made that it was a preventive against infection from venereal diseases. The advertising matter distributed with this preparation was so worded as to be particularly attractive to men of the army and navy. A chemical analysis of this preparation by the Chemical Laboratory revealed that it contained an infinitesimal amount of iodine. The Department contended that so small a content of iodine could not produce the results claimed and that, therefore, this preparation was a vicious type of fraud. The court after reviewing the facts imposed a fine of \$500.00.

During the year this Bureau instituted successful prosecutions against persons who made fraudulent claims as to efficacy of treatment of certain diseases. On January 28 Geo. W. Wall was convicted in the Court of Special Sessions. He professed to be a doctor, claimed that he could cure diseases such as paralysis, diphtheria, tuberculosis, deafness, etc., and dispensed pills which he claimed were of his manufacture and alleged to contain medicinal ingredients and agents known only to Indians, and he posed as being an Indian doctor. Chemical analysis of any of these pills disproved his statement that they consisted in part of medicinal agents. These facts were presented to the court, and in view of vicious character of the fraud, the so-called Dr. Wall was sentenced to thirty days in City Prison.

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Prosecution was also instituted against an individual who termed himself "Captain Sir" Mark Golin ("Knighted Master of Medicine") for practicing medicine without a license. The evidence against him was obtained by inspectors who submitted themselves for examination by him. After he had examined them with a stethoscope he informed one of them that he had a bad heart, that upper part of his lungs were affected with tuberculosis and that his liver, spleen and kidneys were in a shocking condition. When inspector inquired if there was any chance for recovery, Sir Mark Golin replied, "You will be alright in four weeks; the fee will be \$50.00 for treatment, payable \$12.50 weekly and an additional fee of \$5.00 for medicine." The inspector agreed to these terms and was then subjected to following treatment: A few drops of a liquid preparation was applied directly to the skin, leaving a red spot which he (Sir Mark Golin) stated was the inflammation he was drawing out from affected parts. This procedure was repeated numerous times on chest, abdomen, kidneys, neck and head, after which he informed the inspector that it would be necessary for him to take the medicine he prescribed and which he called "Idealia," which would build him up. Another medicine "Por-La-Cor" was also prescribed for his heart, as well as a medicine called "Firine" to kill all microbes. A number of pills and a powder were also prescribed to clear his system and tone up the blood. He was then notified to return the following Sunday for further treatment and to make a payment as agreed of \$12.50. Another inspector also received the treatment outlined above. When Sir Mark Golin was arraigned before the Court of Special Sessions, Brooklyn, his actions were so questionable that the court committed him to Kings County Hospital for observation. He was subsequently arraigned in the Kings County Court and was committed to Kings Park Insane Asylum June 12, 1918. Subsequently he was released, and on January 24, 1919, he was fined \$50.00 for practicing medicine without a license.

Prosecution was also instituted against Emil Mayer, who sold an ointment for \$1.00 which he claimed would cure syphilis and gonorrhoea, and a long list of other diseases. The label on preparation read as follows: "Mayer's Salve—Conqueror of Blood Poisoning and Syphilis. Its judicious use prevents blood poisoning and cures syphilis; in burns it renders skin grafting unnecessary; efficacious in wounds, sores, ulcers, burns, etc., spread thinly the salve on muslin and apply until cure is effected." Analysis of this salve showed that it contained—rosin 25%, wax 15% and lard 60%. Judgment was suspended because defendant was pronounced insane, although subsequently released. Promise was enacted from defendant that he would cease manufacturing and selling the remedy for any purpose.

Hearings were held in a number of other cases in which the claims, while fraudulent and misleading were not as vicious as above outlined. As a result, the sale of these preparations was either discontinued or claims made were modified.

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During the prevalence of influenza, investigations were made of the quality of aspirin tablets sold in this city, as result of a rumor circulated that aspirin tablets contained the germ of influenza. A number of samples were procured throughout Manhattan from manufacturers and from retail drug establishments. The tablets were found to be absolutely free from germs.

The Borough Chief of Brooklyn reports that he found in an establishment 394,000 tablets in packages labeled "Aspirin Tablets." Upon analysis they were found to contain 70% inert matter, 30% free salicylic acid and no acetyl salicylic acid present. The manufacturer, Geo. W. Kukay, was summarily arrested and was convicted and sentenced to an indeterminate jail sentence of from one to three years and to pay of fine of \$500. The so-called aspirin tablets were confiscated and destroyed.

CHEMICAL LABORATORY.

This was probably the division most affected by the war. A number of chemists and laboratory assistants were drafted and it was impossible to replace them with substitutes. Notwithstanding this handicap, the laboratory actually made more analyses during 1918 than in previous year, as shown by the following:

	1917	1918
Reports forwarded and filed.....	10,615	12,236
Milks analyzed.....	6,477	7,812
Creams analyzed.....	1,576	2,110
Waters analyzed.....	277	113
Other foods.....	1,270	1,426
Drugs and medicinal substances.....	471	524
Miscellaneous	544	251

12,042 samples of various kinds were submitted for analysis during 1918 and 3,110 adulterations found.

The food having the greatest general importance is milk with which is associated cream. Of 7,812 samples examined, 1,594 were adulterated, or 20%. This does not report real conditions, as inspector only submits to laboratory samples of milk which he believes suspicious, after having examined same with lactometer.

Cream is of less importance than milk, since it is largely demanded by adults and is not a necessity for infant feeding. Of 2,110 samples examined, 52% were found adulterated. No antiseptics were found in any sample of milk or cream. All were examined for formaldehyde, borax and boracic acid and in some cases a complete examination was made for preservatives.

The increased adulteration of olive oil is of interest. Previous to the shortage, due to the war, it was a rarity to find a sophisticated olive oil. Examinations during 1918 show 68 adulterated samples out of 85, or 80%. As in milk, this does not reflect real condition of the olive oil industry in New York

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City since the samples submitted for analysis were not average samples, but in many cases were suspected or known to be adulterated.

One of the most important series of examinations of foods was carried out by the microanalyst for presence of suspected ground glass in foods of all types, both liquid and solid. During early part of the year a rumor was circulated that alien enemies were putting ground glass into foods of all sorts. Microscopic examination is the only certain method for identification of ground glass, since practically all canned fruits and fruit products and vegetables contain small quantities of sand that must be differentiated from glass. The following foods were examined for glass. In a few ground glass was found. In some, chips or large pieces were found. These latter undoubtedly were present through accident or carelessness.

<i>Character of Sample</i>	<i>Number Examined</i>	<i>Number Containing Glass</i>
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Bread	128	6
Cake	19	1
Flour	10	1
Candy	81	6
Canned fish.....	3	0
Jams and jellies.....	16	0
Cocoa	1	0
Canned vegetables.....	8	0

Microscopic examination was also applied to examination of foods for identification of moulds, spores, yeast, bacteria and foreign substances, especially in case of mixed flours and for comparison of suspected samples with those of known purity. This method of examination has been of inestimable value in supplementing the purely chemical methods available.

Medicinals.

Of this group 17% was found not to comply with requirements of the Sanitary Code. They are roughly divided into proprietary preparations, pharmaceuticals, cosmetics and crude drugs for microscopic examination. The proprietary preparations in most cases were of little or no value, from a medicinal standpoint, containing active principles in insufficient quantities for medicinal purposes desired.

Pharmaceuticals made up larger part of the medicinals. The scarcity of acetyl salicylic acid (aspirin) because of the loss of German supply caused a number of manufacturers to produce this drug. Chemical examination showed in two samples that free salicylic acid, with sugar, starch, talcum and carbonates of calcium and magnesium were substituted. One sample showed free salicylic acid with sugar and starch as a substitution. 83 samples of rhubarb and soda either were partially lacking in required quantity of glycerin or glycerin was

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entirely lacking. In general substitution and short weight were the general causes of adulteration in pharmaceuticals.

Prescriptions.

Prescriptions suitable for chemical verification were written by Department physicians and presented by inspectors at a number of drug stores to be compounded and filled. Here also was found, in some cases, substitution and short weight.

A considerable portion of the drug work was crude drug examination. Microscopic methods play a large and important role also in this class of work.

Conclusion.

With the war over, the control of food supply is even of greater importance than before or during the war. Many food substitutes have been placed upon the market, prices of necessary foods have risen so high as to be almost prohibitive, and, owing to the high nervous tension which the people have been living under, necessity for adequate supervision is still greater.

Owing to the direct results which an adequate and wholesome food supply has to general health of the community, the food work of the Department should be extended. There is a big field for education among people of this city as to what and how to eat and why they should eat certain essential foods. If the people had a better knowledge of foods and food nutrition, they would become their own food inspectors, and, with a discriminating public, the health of the community would also be bettered.

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The work of the Bureau of Child Hygiene during 1918 has been affected by the many readjustments and altered conditions made necessary in large part by the war.

Children react more acutely than adults to changed environmental conditions. The increased cost of living and failure of increase in wages to keep pace with this cost, have reacted upon them in many ways. Notably, we have had a diminished supply of milk for very young children and insufficient or wrong feeding for older children, resulting in undernourishment and lessened resistance to disease.

The work of this Bureau has been affected, also, by depletion of its staff, due to physicians and nurses who left for military duty. At all times during the year there have been a large number of vacancies and the diminished force has had, to a large extent, to carry a double burden of work.

In February the supervision and control of the work of the Bureau in The Bronx and Queens was removed from jurisdiction of the Director of the Bureau and is now performed by the Assistant Sanitary Superintendents of the respective boroughs. Full details of connection of the work in these two boroughs with that of the central bureau have not yet been fully formulated, but, as far as possible, the Bureau officials have kept in touch with work in these boroughs and have determined the policy and outlined the purposes of work.

Infant Mortality.

There has been, generally speaking, throughout the United States, an increase in the infant mortality rate during the year. Up to October, New York City had over seven hundred fewer infant deaths than for the corresponding period of previous year. In early part of that month the city was visited by the widespread epidemic of influenza and pneumonia. During week ending October 26, there were five hundred ten deaths of infants under one year of age in the city, a larger number for any one week than had been registered since July, 1910. When the epidemic began to subside in early December, not only had the reduction in number of deaths been wiped out but an actual increase of slightly over a hundred deaths was shown as compared with same period last year.

An analysis of this increase in infant death rate has shown that, with few exceptions, influenza was not the cause of death. The great increase was shown in groups of cases known as "congenital" and "respiratory" diseases. In the former group, cause of death could be almost directly traced in each instance to death or serious illness of the mother, resulting in involuntary neglect of the baby. The increase in respiratory disease group seems to have been effected largely in same manner. Few outright diagnoses of influenza were made. The majority of deaths from broncho-pneumonia seem to have been the result of

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neglect and lack of care due to serious illness in other members of family or death of the mother.

Notwithstanding this increase, however, the end of year found New York City in the front rank of the ten largest cities in its infant death rate. The rate of 91.7 deaths under one year of age per thousand births reported is the second lowest to be recorded in history of the city, 1917 having shown a rate of 88.8. The records obtained for the ten largest cities of the United States are as follows:

<i>City</i>	<i>Infant Death Rate Per 1,000 Births</i>	<i>Estimated Total Population of City</i>
New York.....	91.7	5,872,143
St. Louis.....	94.4	779,951
Cleveland	97.4	810,306
Detroit	100.7	405,766
Boston	114.8	785,245
Buffalo	121.5	473,229
Pittsburgh	122.5	593,303
*Philadelphia	123.9	1,761,371
Chicago	131.3	2,596,681
Baltimore	147.7	599,653

An analysis of causes of deaths of infants is given further in this report, but emphasis should be placed upon necessity of extending work of instruction of expectant mothers. The death rate from diarrhoeal diseases in the last ten years has shown a marked decrease. From respiratory diseases there has been a most satisfactory decrease, while among congenital diseases there has been a very slight decrease; in fact, this rate has been almost stationary.

The only borough which has shown any decrease in infant mortality rate from congenital diseases during past two years has been Manhattan. This is the only borough in which the Department has carried on any prenatal work. In addition, during the past year, there has been an extensive movement, under the Maternity Center Association, to zone the borough and establish local offices which would serve as clearing houses for all organizations within indicated districts interested in care of expectant mothers.

The experience of the Department and other organizations has clearly shown that if pregnant women can be kept under proper observation and given the kind of instruction that is properly the function of the public health nurse, the death rate during first month of life, which now amounts to nearly forty per cent of total baby deaths during the first year, can be practically cut in half. If this tremendous saving in life can be extended to all babies born in New York City, there would be an enormous reduction in baby death rate. There can be no doubt of the wisdom or expediency of carrying on this work; it is simply a question of financial support.

*Report tentative.

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The history of the city has shown that, at intervals, there has been a tendency for infant death rate to remain more or less stationary for several years. This can usually be traced to the fact that the type of work performed for preceding six or eight years has gradually reached full effectiveness and the reduction of death rate as a result of such work has approached practically the irreducible minimum unless new types of work are introduced. At these intervals the tendency will be for death rate to remain at a level, with slight fluctuations, from year to year. This will probably be the case in New York City unless new lines of work can be instituted. The most promising, as well as most urgent line of work, is the care of expectant mothers and prevention of deaths from congenital diseases among babies during first month of life. Funds sufficient for proper carrying on of this work should be provided as an urgent measure of life-saving.

Preschool Age Work.

Beginning April 6, the Federal Children's Bureau and the National Council of Defense, launched a campaign for a Children's Year. Extensive preparations were made throughout the United States, with particular reference to concentration upon the preschool age group—children between two and six years of age. This work has been carried on under the Mayor's Committee of Women on National Defense, with the Director of this Bureau as Chairman of the Children's Year for New York City. The Bureau has participated largely in this work, in cooperation with a large number of private organizations and many volunteer workers. Effort has been made to reach as large a number as possible of children of preschool age, and they have weighed, measured and physically examined for purpose of detecting any existing physical defects and preventing future ill-health. The necessary follow-up work has been carried on by nurses of the Bureau and various private agencies, together with volunteers.

This age group bears same relation to the school child that the prenatal period bears to the baby. It is the one period of child life that has been most neglected by public health officials. Improved birth registration and the vast campaign of public health education has resulted in practically every mother's realizing importance of baby care. The schools afford a convenient clearing-house where the child of school age may be reached but, so far, no adequate measures have been formulated for reaching the child of preschool age. It is the common feeling among mothers that after a child has passed babyhood it no longer needs special care and attention, yet during this age period immunity to contagious diseases is at its lowest point. In the United States approximately 81 per cent. of deaths from contagious diseases take place under five years of age, while studies have shown that from eighty-five to ninety per cent. of total morbidity from contagious diseases is found within this age group. Examination of these children has shown that physical defects exist in greater degree than among children of school age.

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Also, such children are more susceptible to environmental conditions than older children. Potentially, the preschool age child is extremely important from the health point of view. These children are passing through the most plastic stage of development. There is here an immense field for preventive health work of the highest type. It is to be hoped that the impetus given by Children's Year activities will result in a well-formulated program for conservation of health of the preschool age child, as well as laying the foundation for good health during school life.

Supervision of Children of School Age.

Owing to our depleted forces, the number of children examined is less than during previous years. The routine examination in third and sixth grades have practically had to be eliminated as the full time of inspectors has been taken up with examination of children entering school for the first time and special cases referred by teachers and nurses. During the latter part of the year the entire school force concentrated attention upon prevention of influenza among children of this age group. Believing that safety of the children lay largely in our ability to keep them under constant supervision, the schools were kept open. Each morning each child was inspected by the teacher and every child showing any symptom of illness was referred to the doctor or nurse, who made a more complete examination and excluded from school attendance any child suspected of being ill. Follow-up visits to homes for purpose of making final diagnosis gave the Department a method of control over practically a million children, or one-fifth of the population.

The value of keeping schools open under such conditions cannot be over-estimated. To have readily at hand such a means of supervision and control when there is possibility of an epidemic of contagious diseases is invaluable and could hardly be surpassed by any method devised. Its effectiveness was amply demonstrated. During the early fall a number of children were kept at home because of fear of their parents but at no time was there found enough cases of influenza or pneumonia to cause alarm or to indicate that the school had served as a means of transmitting the disease. During latter part of the epidemic the absence from school was no greater than during same period last year. The age group from five to fifteen years has suffered less severely from influenza and pneumonia than any other age group except people over sixty-five years. We are convinced, from experience in this epidemic as well as in previous years in handling of contagious diseases in children of school age, that if an efficient system of school medical inspection can be maintained, keeping schools open is one of the most effective methods yet devised for the control of contagious diseases among the child population.

Undernourishment of School Children.

The question of undernourishment of children of school age has attracted much attention during the past two years. During the first year of the war

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the average number of children in our schools found to be undernourished was 5%. During 1915 this had increased to 6%. In 1916 11% were undernourished, while a special survey made in the fall of 1917 showed that of 171,691 children examined, 21.6% were found undernourished. The Dunfermline scale was used in determining degree of undernourishment with following results:

Grade 1	Excellent	29,781	17.3%
Grade 2	Good	104,908	61.1%
Grade 3	Needing supervision.....	31,718	18.5%
Grade 4	Needing medical care....	5,284	3.1%

During 1918, out of 184,374 children whose nutrition was graded according to the Dunfermline scale, 19% were found undernourished:

Grade 1	Excellent	40,978	22.3%
Grade 2	Good	108,290	58.7%
Grade 3	Needing supervision.....	29,254	15.8%
Grade 4	Needing medical care....	5,852	3.2%

This slight decrease is satisfactory, although the fact that one-fifth of our school children are sufficiently undernourished to be in need of supervision and, in a large number of cases of medical care, still gives cause for grave concern. The Bureau has brought this matter to attention of the public and, largely as a result, there has been a widespread campaign for establishment of school lunches in public schools of the city. At present, private organizations maintain a few school lunches in Manhattan and Brooklyn. They are, however, inadequate to cope with the situation. Strenuous efforts have been made by the doctors and nurses of the Bureau to instruct mothers in use of proper substitute foods and arrangement of family budgets, with particular regard to needs of the child, and to readjust home conditions so far as possible, so that the child may have proper hygienic care and adequate and suitable food. The question has seemed an economic one, the second factor of importance being the widespread use of substitute foods, made necessary by exigencies of war.

This increase in undernourishment among children has been common in the belligerent countries of Europe. In many of these a certain amount has undoubtedly been due to actual hardship. In this country, however, it is probably the result of the inevitable maladjustment of the population to unusual living conditions and extraordinarily high cost of foodstuffs. Not all cases of undernourishment are due to underfeeding. A large proportion are due to wrong feeding and a certain number to general neglect of hygiene of the child.

It is felt that a beginning in correction of this condition should be made by provision of an adequate hot meal in middle of the day for every school child. It should not be merely a question of feeding undernourished children. No

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progress will be made in meeting this condition if we confine attention to children already affected. Every child should be assured of at least one hot and nourishing meal each day, and this should apply to all well children as well. Only in this way can we prevent this condition from occurring in future. Simply paying attention to already undernourished children is a type of work similar to that carried on by health departments in confining work for reduction of infant mortality to the treating of sick babies. Each year found the situation as bad as ever; indeed, there was a tendency for the evil to increase. It was only when it was understood that the way to reduce infant mortality was to keep babies well and to concentrate attention upon the well baby rather than on sick ones that we began to have a decided decrease in baby death rate. For the same reason, we should extend our care of the school child to all school children and a lunch should be available for everyone.

For 1918 the budget provides \$50,000 for the Board of Education to be spent on school lunches and it is to be hoped that such a system will not only be instituted as rapidly as possible but that it may be extended at an early date to cover all schools of the city.

Employment Certificates.

A striking feature of the work of issuing employment certificates was the passage of the Cowee bill which permitted issuance of summer vacation employment certificates. This was considered as a war emergency measure, due to needs of the labor market. Its enforcement, however, has not been satisfactory. A large number of children who obtained these certificates for purpose of working during summer months were returned to school only after the utmost difficulty and many were lost sight of and did not resume school work. Now that the labor market is returning to its normal level, repeal of this law would be desirable.

Supervision of Foundling Infants Boarded Out.

Conditions have markedly increased the problem of supervision of children boarded out in private homes. War prices have made it impossible for those boarding children to do so at a profit or, in many instances, even to receive adequate compensation for actual food and clothing of the children. The war has also increased the number of children placed out to board in private homes and there has been a tendency to place a greater number with one family.

The recent epidemic of influenza left hundreds of children without parents or homes. As a result, a large number of these were placed by individuals in private homes to board or were placed through various agencies maintaining placing-out departments. In addition, the city authorities discontinued the direct placing of children in private homes and adopted the policy of placing city charges through various institutions maintaining placing-out departments. The city authorities also adopted the plan of allowing only two charges placed in each

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home. All of this has necessitated a larger number of inspections of homes, stricter supervision and more detailed inspection before granting permits. The following shows number of permits in force from 1911 to 1918, inclusive:

<i>Year</i>	<i>Permits in Force for Board and Care of Children</i>
1911	2,027
1912	2,835
1913	3,123
1914	4,234
1915	4,740
1916	5,330
1917	5,698
1918	3,238

Previous to 1918, in order to facilitate boarding out of children by the Department of Public Charities, permits were issued in a majority of cases for the maximum number which the home would accommodate. With the change of policy of present authorities, the practice has been discontinued and permits are now granted for a minimum number whenever possible. It is believed this change is for best interests of both children and foster-parents. Homes are classified at time of inspection according to their adaptability to the care of breast-fed babies, artificially fed babies up to two years of age and children from two to six years, and are graded according to general sanitary and moral conditions of the home and neighborhood.

Where inspections are made for issuance of permits for more than three children, the policy of a reinspection by a different inspector has been adopted to avoid possibility of overcrowding. In all cases where permits are requested for more than three children, the past record of applicant is gone over in detail through a review of inspection reports made by nurses of the Bureau.

The Bureau has actively cooperated with the Department of Public Charities, to mutual benefit. Lists of homes holding permits to board children have been given to that Department, thus facilitating its work of placing dependent children. Through active cooperation with the Society for Prevention of Cruelty to Children in the various boroughs, children have been removed from many undesirable homes and the general standard and morale of foster-parents have been raised.

The work of placing children by various agencies maintaining placing-out departments has been facilitated by our classification and grading of homes. Many new placing-out agencies have been instituted as a result of the war and the epidemic of influenza. Every effort has been made to facilitate their work. Thorough cooperation with the Babies' Welfare Association, the Bureau has assisted in provision of a large number of wet nurses. It has also been

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able to provide homes for children who were placed to board by private individuals.

Foundling keepers are required to maintain a registry of all children boarding in their homes. These registries contain a current record of general condition of the children and record any acute illnesses, together with information as to conditions found at time of inspection by the nurse from this Bureau or by other agencies interested.

Institutions and agencies placing children to board in private homes have been urged to avail themselves of use of the baby health stations as a means of maintaining proper standards of health among children placed by them to board in private homes. The policy of the Bureau regarding those who board children placed by private individuals is to urge that the children be registered at nearest baby health station for medical supervision. This active cooperation between the Division of Baby Welfare and the Division of Midwives and Foundlings has resulted in many instances in intensive work of supervision, as a result of which many poorly nourished babies in homes of professional foundling-keepers have markedly improved. The Bureau has actively cooperated with the Bureau of Preventable Diseases by reporting presence of infectious diseases in homes of foundling keepers and has also been alert to determine presence of tuberculosis in homes of prospective foundling keepers.

Several large mass meetings of foundling keepers were held with a view to interesting them in welfare of the children entrusted to their care. They were urged, as part of their patriotic duty, to make additional effort to improve the health condition of the children. Motion pictures on health problems were shown and it is believed that these meetings resulted in an added enthusiasm and a feeling of importance of the work among foundling keepers.

Provision of Wet Nurses.

The Bureau has continued its efforts to increase the number of available wet nurses, by asking mothers of stillborn children to wet nurse children of other mothers who are unable to do so. In all cases where women are willing to wet nurse, they are required first to submit to an examination of the blood to determine whether they are free from syphilis.

CONTROL OF PRACTICE OF MIDWIFERY.

The Bureau has tried to maintain an efficient control of the practice of midwives, in spite of the fact that the staff of inspectors and nurses assigned to this work was markedly depleted at times and that a large number of physicians of New York City who would normally have been engaged in practice of midwifery were absent from the city, thus adding to the practice of midwives and taking away a large body of men interested in their proper control and who had been in the habit of assisting midwives in cases of abnormal child-

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birth. In spite of these handicaps, there has been no increase in amount of puerperal sepsis following childbirth or in number of stillbirths, except during the epidemic of influenza, or in number of cases of suppurative eye conditions among newborn children. The following shows extent of the practice of midwifery in New York City:

Year	Midwives Registered	Births attended by midwives	Per cent. of total births reported by midwives
1909.....	3,131	49,616	40.35
1910.....	1,515	51,996	40.28
1911.....	1,488	51,756	38.48
1912.....	1,325	52,743	38.88
1913.....	1,488	50,364	37.27
1914.....	1,448	52,997	37.69
1915.....	1,469	49,915	35.34
1916.....	1,798	46,487	33.78
1917.....	1,656	47,525	33.57
1918.....	1,612	42,886	31.06

A flag system of recording delinquent midwives was adopted, with result that we are able to compile statistics of delinquencies of midwives practicing in Manhattan, Brooklyn and Richmond, as follows:

MIDWIVES FOUND GUILTY OF DELINQUENCY

CHARACTER OF OFFENSE	NUMBER OF TIMES FOUND GUILTY			
	One	Two	Three	Four
Uncleanly equipment.....	133	36	5	3
Uncleanly person.....	3	1	....	....
Uncleanly Home.....	135	47	13	0
Attended puerperal sepsis cases.....	7	....	....	....
Attended sore eye cases.....	28	1	1	....
Delay in reporting births.....	24	4	....	....
Failure to report births.....	3	....	....	....
Death of mother after childbirth...	2	....	....	....

As a whole, the general conditions among midwives are much better than is ordinarily believed to be the case by practicing physician and the laity.

This is the first attempt of the Department to record delinquencies of midwives and it is believed the record is complete, as it is compiled from regular inspection slips made by inspectors and nurses after routine inspection of homes and equipment of licensed midwives.

During 1918 we began to see results of having midwives keep registries of their activities. They are far more careful in recording in these registries any abnormal cases attended, temperatures which may develop and are far neater and more systematic in their record-keeping and their work. These registries have been of great help in determining dependency claims of sons of midwives in

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relation to the draft and information has been furnished to the authorities regarding extent of the practice in many instances.

Control of Suppurative Eye Conditions: A most accurate and complete record has been kept of all sore eye cases reported to the Department. In every instance information has been secured as to condition of the child's eyes on termination of the case. Where the case is recorded as occurring in practice of a midwife, the condition of eyes on termination is determined by an oculist of this Department. In no instance has a case of sore eyes occurring in practice of a midwife in this city during the year resulted in partial or complete blindness. It is believed that the active follow-up work of the Bureau among suppurative sore eyes has made negligible the occurrence of blindness as a result of ophthalmia neonatorum in New York City.

	Suppurative Eye Cases	True Ophthalmia
Reported by midwife.....	25	5
Reported by physician.....	4	5
Reported by institution.....	2	5
Reported by other persons.....	4	2
	—	—
Cases terminated as cured.....	32	10
No information obtainable.....	1	3
People moved or not found.....	1	4
Permanent injury to eye.....	..	..
Died	1*	..
	—	—
	35	17

Stillbirths: The routine investigation of stillbirths has continued and responsibility for many cases has been properly fixed. The number of stillbirths occurring in the city in practice of midwives during 1918 was normal up to time of the influenza epidemic. Statistics of the number of stillbirths occurring in the city in practice of midwives during 1918, by months, bear out the statement that influenza has not only been fatal to the person of childbearing age, but it has also been a factor of importance in production of stillbirths.

Puerperal Septicaemia: The Bureau has been active in enforcing the regulation of Sanitary Code (Section 91) which requires reporting of puerperal septicaemia as soon as diagnosis is made. Institutions and physicians were notified of intention of the Department to enforce this regulation and a campaign of notification of failure to report was inaugurated. All death certificates giving puerperal septicaemia as cause of death were referred by the Bureau of Vital Statistics to this Bureau, where investigation was made. If case had not been reported ante-mortem, the person signing death certificate was informed of his

* Died of skin disease.

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failure to report and given opportunity to explain. Where inadequate excuse was offered, the case was referred to the Corporation Counsel for civil action. This campaign resulted in increasing the number of cases reported before death. Investigation of these has offered an opportunity to study frequency of deaths due to abortion. Where information was obtained which would lead to belief that case was of a criminal nature, it was referred to the Police Department for action, with result that in many cases midwives and physicians have been held on charges of criminal abortion, and in some instances, of manslaughter.

Cases of Puerperal Sepsis Reported.

Year	Reported by Midwives	Reported by Institutions	Reported by Physicians
FATAL CASES:			
1915.....	43	....	226
1916.....	50	....	195
1917.....	40	83	156
1918.....	15	84	61
NON-FATAL CASES:			
1915.....	....	21	2
1916.....	1	135	16
1917.....	....	70	20
1918.....	1	114	18

Care of Expectant Mothers.

Effort was made to have midwives register their expectant mothers early in pregnancy for instruction in the hygiene of pregnancy. They have also been urged to coöperate with various maternity centers operating in their neighborhoods. There has been in the past a great deal of prejudice regarding midwives referring their cases to various nursing agencies. This has been overcome to a great extent, as the nursing agencies have offered services of their trained nurses to midwives for after-care of their cases. It is felt that midwives are becoming educated up to the point where they are willing to avail themselves of all opportunities to better conditions for mothers and babies under their care, and with registration of expectant mothers by midwives, we can look for a marked decrease in mortality from congenital diseases.

Education Propaganda: Five large mass meetings of midwives were held during the year, in moving picture theatres, and were largely attended. They were addressed by representatives of the Department and by others interested in problems surrounding the practice. Literature was distributed at these lectures as well as at routine visits of nurses to homes of midwives.

Through courtesy of the "Midwives' Journal," a month's edition was devoted entirely to the federal "Children's Year" campaign. President Wilson's appeal for conservation of child life, an address by the Director of this Bureau,

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together with various appeals and articles on the Children's Year campaign, were published. Midwives who were subscribers to the Journal were requested to sign pledges as active workers for Children's Year. These pledges read as follows: "I, the undersigned, a midwife of the city of New York, pledge myself on my honor before God, to aid the city of New York, the State and the United States, to save the lives of one hundred thousand babies during the coming year by faithfully performing the duties of a midwife and by availing myself of all help offered me and my patients to save mothers and babies during the Children's Year." About fifty per cent of midwives practicing in New York returned these pledges.

Syphilis: The Bureau continues to refer cases of suspected syphilis which have resulted in occurrence of stillbirths in practice of midwives to the Babies' Welfare Association, which follows up such cases for further prenatal instruction and to obtain treatment for the mother. It is hoped that this follow up work will result in treatment of a large number of neglected cases of syphilis.

Criminal and Illegal Practice: As a result of work instituted by this Bureau in 1918, every case of abortion attended by a public institution of this city is reported by telephone to the Department. The Division of Institutional Inspection immediately investigates the case and if there is any possibility that it may be a criminal abortion, the matter is referred at once to the Police Department for investigation. This system has furnished the most efficient means of obtaining evidence for prosecution of the criminal abortionist that has been devised. The Bureau also investigates all complaints relative to illegal practice of medicine by midwives and, where sufficient evidence is obtained, cases are referred to the County Medical Society for prosecution. The various District Attorneys of the city have furnished the following information as to conviction of midwives during 1918:

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BOROUGH.	Number of Arrests.	Attempted Abortions.							Abortion.							Mandaughter.								
		Indicted.	Found Guilty.	Acquitted.	Bail Discharged.	Sentence Suspended.	Awaiting Trial.	Prison.	Indicted.	Found Guilty.	Acquitted.	Bail Discharged.	Sentence Suspended.	Awaiting Trial.	Prison.	Failed to Indict.	Indicted.	Found Guilty.	Acquitted.	Bail Discharged.	Sentence Suspended.	Awaiting Trial.	Prison.	Failed to Indict.
Manhattan.....	00046	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bronx.....		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brooklyn.....		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Queens.....		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Richmond.....		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Baby Welfare: The Bureau is charged with the duty and responsibility of safeguarding the health and lives of infants and children from prenatal period until adolescence. This obligation, in so far as it relates to children under six years of age, was discharged in part through the Baby Health Stations, fifty-nine of which were operated and maintained by the Department—twenty-eight in Manhattan, twenty-four in Brooklyn, three in The Bronx, three in Queens and one in Richmond. Fifteen stations originally were established in 1911, increased to fifty-five in 1912, and fifty-nine in 1915. These centers, established for supervision and care of infancy and early childhood, were first called "Infants' milk stations." Later they were designated "Baby Health Stations," a term broader and more comprehensive in scope and calculated to emphasize the educational and prophylactic objects of the service rather than the value of milk *per se* as the essential factor in control of infant morbidity and mortality.

While established primarily for care of babies under two years of age, other important activities have developed around the Baby Health Stations as centers for preservation of child health and life, so that at present the more important functions of the Bureau clearing through them are as follows:

Instruction and supervision of expectant mothers, popularly termed "prenatal care."

Supervision of care and feeding of babies under two years of age.

District or home visiting by a corps of field nurses, mainly during heated term.

Physical examination of children of preschool age (two to six years), followed by visits to homes for advice and instruction and efforts to secure correction of physical defects found on examination.

Centers for other departmental and local social activities.

The organization of this work has remained substantially the same—one medical inspector for each three stations, attending each twice a week; one nurse and one nurse's assistant for each station, attending daily, and fifty-seven temporary nurses for a five months period, in daily attendance during heated term, the most dangerous seasonal period for infants.

Owing to conditions associated with the war, the influenza epidemic, and illness and delay or failure to fill vacancies, the personnel of the service has lacked the continuity of former years and the many changes in schedule and frequent readjustment of working forces reflected themselves in the irregularity of station attendance. Mothers soon gain confidence in a doctor and a nurse regularly assigned to a station and just as quickly lose this confidence when many changes take place.

The temporary nurses, scheduled for appointment on June first, were not assigned because of delayed appropriation until August 12. In a sense, this delayed appointment worked to advantage of the Department because the money available was sufficient to keep these nurses until end of the year, to assist in combatting the epidemic. The status of infant mortality up to October 26 was more

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favorable than in 1917. At that time, owing to an increase in respiratory and congenital diseases—all an aftermath of the epidemic—it began to ascend by leaps and bounds.

Prenatal Care: This work, first begun by the Bureau in 1913, has been expanded in scope but curtailed, because of financial limitation, in amount and volume. No special funds were appropriated for a nursing corps to perform this important special service, but an amount sufficient for assignment of seven nurses the year round was taken from the special appropriation set aside for appointment of temporary nurses during summer months. It must be admitted that this work was not performed so effectively or continuously as in previous years, for the following reasons: (a) because of vacancies in regular nursing force and failure to fill places, the prenatal nurses had to be assigned to regular Baby Health Station duties; (b) because, for time being, the influenza epidemic surpassed in importance and urgency all other activities of the Department, these prenatal nurses were assigned to influenza duty at hospitals and in homes; (c) there was an increased illness incidence among the general nursing body, including prenatal staff; (d) opportunities were offered to prenatal nurses of the Bureau to take up similar work with private agencies in this and other cities at increased compensations.

Indications for an intensive and persistent campaign of instruction and supervision of expectant mothers have been presented by the Bureau for the past five years, and may be briefly stated as follows:

Over forty per cent. of all deaths during first year of life are caused by congenital diseases.

Approximately seventy-five per cent. of all deaths during first month of life and ninety per cent. during first ten days of life are due to congenital diseases.

While infant mortality rate from the second to twelfth month of life has shown a decided reduction during recent years, the rate during first month of life has remained practically stationary.

The infant mortality rates from diarrhoeal and respiratory diseases have progressively declined during past ten years while change in rate from congenial diseases has been inconsequential.

Number of stillbirths *reported* to the department remains about the same from year to year. The number reported for 1918 was the largest during past five years.

Over forty per cent. of all deaths during first year of life reported for 1918 took place during first month of life.

More women of childbearing age die from conditions associated with pregnancy than from any other cause except tuberculosis.

To-day, congenital diseases occupy the unenviable first place in list of baby-killing diseases, with respiratory diseases second and diarrhoeal diseases third. In fact, during 1918, out of 12,657 infant deaths, 2,993 are ascribed to respiratory

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and 2,032 to diarrhoeal diseases, a combined total of 5,025 as against 5,344 infant deaths from congenital diseases. More infant deaths from congenital diseases than from respiratory and diarrhoeal diseases combined! Such figures must give cause for reflection and point the way to a future program for infant mortality control.

With almost 140,000 births registered annually in New York City, and with approximately 75,000 expectant mothers sorely in need of supervision, a corps of seven nurses, even when supplemented by regular Baby Health Station nurses, can scarcely do more than scratch the surface of the problem.

Although the work performed by the Bureau has been less than in some former years, the sum total of prenatal work performed in the city, through augmented number of agencies taking up the work as a result of this bureau's activities, will be found in excess of former years. In addition to instruction of expectant mothers by this special corps of nurses, all regular Baby Health Station nurses offer similar instruction to these mothers as they visit the stations or are found in the homes, and this supplemental prenatal service has reached the following numbers:

1914	1915	1916	1917	1918
1,968	1,838	1,620	2,109	1,634

This work was extended during the year to the end that newborn babies were followed up, as far as possible with our migratory population, by the prenatal nurses for entire period of the first year, either directly or through agency of the various Baby Health Stations.

Our experience teaches that with a wider and more general application of prenatal service throughout the city, a definite impression could be made upon the infant mortality situation directly and indirectly as follows: a reduction in death rate from congenital diseases, fewer deaths during first month of life, fewer stillbirths, premature births and maternal deaths, accidents and complications incidental to pregnancy and during labor and post-partum, an increased percentage of maternal nursing, an augmented number of deliveries by physicians instead of midwives, the seeking of advice by future mothers in early months of pregnancy, closer supervision of midwives, improved birth registration, fewer sore eyes at birth, placing of babies under medical care during first month or before third month of life, and an increased enrollment at Baby Health Stations.

The inability of the Bureau to conduct this work as extensively as indications demand was offset in a measure by the stimulus which our results gave to other organizations to take up the work. In coöperation with the Department, the Maternity Center Association has zoned or districted the Borough of Manhattan so as to keep within definite local or neighborhood confines all prenatal, obstetrical and postnatal activities of a given area, to reach a larger number of mothers, to prevent overlapping and duplication of effort and to afford the public the greatest amount of good with a minimum inconvenience. Other child caring agencies

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have coöperated and an improved unity of purpose and standardization have resulted. A standard form of prenatal history card has been prepared for use by all organizations alike, in hope that tabulation of effort and results may be better analyzed and directed for constructive application. Some ten maternity zones have been outlined and twenty-two maternity centers were in operation during 1918. At several Baby Health Stations these centers for advice, examination, institutional and other care of expectant mothers were established as part of the Bureau and, as part of national Children's Year program, the interest of agencies and individuals in Brooklyn was aroused with result that that borough has been zoned on lines similar to Manhattan and three prenatal clinics established, conducted on same basis as those of the Maternity Center Association. The Bronx, through Lebanon and Lincoln hospitals, has endeavored to enlarge the scope of this work during the year.

Physicians, midwives, maternity institutions, nurses' settlements and child welfare agencies have shown greater effort at coöperation. Physicians have taken advantage of nurses' advice to patients under their supervision; midwives have gladly submitted to the Department names of prospective mothers under their care for prenatal advice; maternity institutions have generously lent themselves to the zoning idea and have actively coöperated in examination and admission of mothers, and have referred infants discharged from their service to the Baby Health Stations, while nurses' settlements have referred cases, ante and post partum, to an increasingly gratifying degree. Charity organizations, philanthropic societies and individuals have become interested to extent of assigning and paying nurses in this field and have provided material relief in the form of milk, maternity and baby outfits, etc. The nurses have organized sewing and cooking classes for expectant mothers, which have proved of material benefit and have afforded them a certain amount of social intercourse and relief from home duties, so necessary for a proper and healthy mental attitude during pregnancy.

Stillbirths reported by midwives, in which suspicion existed that congenital syphilis was the cause, were visited by inspectors and nurses and the mothers carefully instructed with a view to securing a living child in future pregnancies.

In order to perfect the prenatal nurses and others interested, a course of lectures, both didactic and practical, on various phases of pregnancy—delivery, after care, care of newborn, etc.—was given at the John E. Berwind Free Maternity Clinic.

The well known high infant mortality rate from congenital diseases among negroes was attacked by assignment of nurses to sections in which the population was largely negro. In the Columbus Hill district, where this mortality was unusually high, the coöperation of the Association for Improving the Condition of the Poor was given and a special nurse assigned by it to work exclusively among these people.

The public realized as never before the great importance and value of this

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work and the number of mothers who voluntarily registered at stations showed an increase. In a word, prenatal care was popularized by the Bureau.

It has become apparent that the death rate from congenital diseases is comparatively low among Italians, Russians and Austrians and high among Americans and Negroes. The thought lies near that much of our effort of recent years among the former, the so-called "tenement population" has been misdirected. It seems that the end result would be better if it were possible for us to reach on a large scale those who need this instruction most—the native Americans. This subject deserves consideration in any future prenatal program. In the absence of necessary field force it may be advisable to follow example of State Department of Health and forward to each newly-married couple literature on subject of the expectant mother and father much in same way that educational literature on child care is now sent to the mother of every newborn child registered with this department.

Supervision of Care and Feeding.

Despite strained economic conditions, the severe mental strain of parents, the high cost of living, the epidemic of influenza which robbed babies of a mother's care either through death or illness, and the social unrest, it is gratifying to record an infant mortality rate during 1918 of 91.7 per thousand births reported, the second lowest in the city's history, the low water mark having been reached in 1917, when it was 88.8. A comparative table for past five years is shown herewith:

Deaths and Death Rates under One Year of Age per Thousand Births Reported.

Year	Total births reported	Deaths under one year	Death rate per 1,000 births reported
1914.....	140,647	13,312	95.0
1915.....	141,256	13,866	98.0
1916.....	137,644	12,818	93.0
1917.....	141,564	12,568	89.0
1918.....	138,046	12,657	92.0

The infant mortality rate by boroughs for past three years was as follows:

Year	Manhattan	The Bronx	Brooklyn	Queens	Richmond	Total
1916.....	102.2	74.1	87.9	93.6	93.6	93.1
1917.....	94.0	79.4	84.9	91.5	91.2	88.8
1918.....	96.1	77.3	90.4	92.9	105.0	91.7

The infant mortality increase for 1918 of approximately three points represents only an increase of 89 deaths on a basis of 3,522 fewer births.

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The experience of all warring nations, a decreased birth rate and an increased infant mortality rate, has therefore been duplicated here, yet an analysis of infant mortality for 1918 indicates that the epidemic of influenza rather than war conditions were responsible for this increase in infant mortality. Even under war conditions, we find that up to the week ending November 2 there were eleven fewer infant deaths than for corresponding period of 1917, with an infant mortality rate of 90, the same as for 1917. Then came the after effects of the influenza epidemic, and within a comparatively short time all our gain of previous months was wiped out.

Infant Mortality from October, 1918, to End of Year.

Week of Year	Up to Week Ending	Weekly Increase or Decrease Over 1917		Total Fewer Infant Deaths over 1917	Total Increase in Infant Deaths over 1917	Infant Mortality Rate	
		Increase	Decrease			1917	1918
40th.....	Oct. 5	.....	24	734	.....	91.0	85.0
41st.....	Oct. 12	.....	16	718	.....	91.0	85.0
42nd.....	Oct. 19	.....	147	571	.....	90.0	86.0
43rd.....	Oct. 26	.....	360	271	.....	90.0	89.0
44th.....	Nov. 2	.....	261	10	.....	90.0	90.0
45th.....	Nov. 9	.....	118	.....	108	90.0	91.0
46th.....	Nov. 16	.....	93	.....	201	90.0	91.0
47th.....	Nov. 23	.....	4	.....	197	89.0	91.0
48th.....	Nov. 30	.....	10	.....	187	89.0	90.0
End of year.....	Dec. 31	.....	.....	.....	89	88.8	91.7

*Note the large weekly increase during October and November, particularly during week of October 26.

During 1918 the infant mortality situation was divided into three periods—two bad and one good. From January 1 to August 3 the record was poor, from August 3 to November 2, we had made up the loss and showed a distinct gain, while from November 2 to end of year the number of infant deaths increased rapidly, showing at end of December an increase for year as compared with 1917.

The havoc wrought among infant lives during the epidemic months is shown by a comparison of infant deaths during October, November and December for 1917 and 1918 as follows:

Deaths Under One Year of Age, by Months, 1917 and 1918.

Month	Manhattan		Bronx		Brooklyn		Queens		Richmond		City	
	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918
January.....	508	536	135	134	354	423	85	97	22	20	1,102	1,210
February.....	498	472	111	89	326	350	68	83	24	24	1,027	1,018
March.....	479	556	154	117	328	462	73	90	12	21	1,046	1,246
April.....	501	513	113	126	324	404	72	62	16	23	1,026	1,128
May.....	498	436	99	84	348	280	74	66	9	12	1,028	878
June.....	406	329	80	83	262	285	56	55	15	21	819	773
July.....	388	397	78	82	318	279	49	57	23	24	856	839
August.....	708	509	141	88	626	385	145	75	34	26	1,654	1,083
September.....	557	377	108	103	425	329	78	46	24	21	1,192	876
October.....	434	722	112	165	318	533	73	119	18	45	955	1,584
November.....	415	466	94	132	292	425	56	80	19	29	876	1,132
December.....	397	397	117	99	365	324	91	54	15	16	985	890
Total.....	5,789	5,710	1,342	1,302	4,286	4,479	920	884	231	282	12,568	12,657

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The epidemic of influenza had a serious effect upon the favorable status of infant mortality up to its advent, a status so favorable that it promised to set a new record for the city. This epidemic exacted its toll of infant life in two main directions—from respiratory diseases and from prematurity, as will be seen from following tabulation:

Deaths Under One Year of Age by Disease Groups for 1917 and 1918, Based on Each Thousand Births Reported.

	Manhattan		Bronx		Brooklyn		Queens		Richmond		City	
	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918
Contagious Dis-												
eases	303	302	56	60	130	163	31	65	6	11	526	601
Death Rate	4.9	5.1	3.3	3.6	3.6	3.3	3.1	6.8	2.4	4.1	3.7	4.3
Respiratory Dis-												
eases	1,274	1,400	282	249	976	1,121	169	182	40	41	2,741	2,993
Death Rate	20.7	23.6	16.7	14.8	19.3	22.6	16.8	19.1	15.8	15.3	19.4	21.7
Diarrhoeal Dis-												
eases	1,314	931	203	152	937	780	184	124	59	45	2,097	2,033
Death Rate	21.3	15.7	12.0	9.2	18.6	15.7	18.3	13.0	23.3	16.8	19.1	14.7
Congenital Dis-												
eases	2,249	2,298	638	661	1,755	1,837	422	408	102	140	5,166	5,244
Death Rate	36.6	38.7	37.8	39.2	34.8	37.1	42.0	42.9	40.3	53.2	36.6	38.7
Others												
Death Rate	649	779	163	180	488	578	114	105	24	45	1,438	1,687
Death Rate	10.5	13.1	9.6	10.7	9.7	11.7	11.3	11.0	9.5	16.8	10.2	12.3
Total	5,789	5,710	1,342	1,302	4,286	4,479	920	884	231	282	12,568	12,657
Death Rate	94.0	96.1	79.4	77.3	84.9	90.4	91.5	92.9	91.2	105.1	88.8	91.7

Deaths Reported from Influenza and Pneumonia (1917 and 1918)

	Manhattan		Bronx		Brooklyn		Queens		Richmond		City	
	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918
Influenza, all ages	269	4,916	71	1,562	265	4,514	42	1,178	10	392	657	12,562
Influenza, under 1 year	26	171	4	32	14	163	4	40	2	24	50	430
Broncho - pneumonia, all ages	1,762	3,151	402	709	1,259	2,599	285	444	75	85	3,783	6,988
Broncho - pneumonia, under 1 year	668	780	185	157	524	677	115	121	28	24	1,520	1,759
Lobar - pneumonia, all ages	3,329	5,870	731	1,642	2,609	4,877	463	868	136	384	7,268	13,641
Lobar - pneumonia, under 1 year	314	379	78	74	244	259	39	39	8	13	683	764

The first of these tables shows what has been observed in others years—the maintenance of infant mortality balance through reduction in deaths from diarrhoeal diseases. In 1918, while contagious, respiratory, congenital and other diseases showed an increase of 75, 252, 178 and 249 cases, respectively, a total of 754, and with it an increased rate for each group, diarrhoeal diseases showed a decline of 665, with a decreased rate.

The increased number of infant deaths from respiratory diseases must be attributed not only to the secondary pneumonic involvement resulting from the

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influenza, but also to unavoidable lack of care and necessary, improper nourishment and undue exposure of many infants, due to illness of mothers and other members of the family and unwillingness, because of fear as well as illness, of neighbors to assist as under normal conditions.

Influenza caused many unfortunate deaths among pregnant women, killing by way of pneumonia, sepsis or hemorrhage. When it did not result in stillbirth or abortion, it caused premature births in many instances. Many of these died and thus the congenital death rate increased. Dr. Guilfooy has stated that a review of figures shows that there were during the ten weeks in which the epidemic prevailed, 289 more deaths among infants from prematurity, atelectasis and malformations than in corresponding period of 1917. The culminating week of the epidemic—that of October 26—showed two hundred deaths from congenital diseases as against 103 for same week of 1917, so we might add as a conclusion that there were almost five hundred deaths of pregnant women and prematurely born infants due entirely to effects of the epidemic. Indirectly, the epidemic was responsible in part for a decrease in number of births, as more stillbirths were reported for 1918 than the previous three years:

Stillbirths Reported to the Department.

1915	6,413
1916	6,253
1917	6,117
1918	6,793

The Bronx not only has the lowest infant mortality rate of all boroughs, as it has had for past five years, but it is the only borough in which rate is lower for 1918 than for 1917. The Bronx, with an estimated population of over six hundred thousand, may be compared with some of the ten largest cities in the United States. While figures for these cities are not, as yet, available for 1918, during 1915, 1916 and 1917 the infant mortality rates for The Bronx were lower than for St. Louis which, during same period, had the lowest rate of any of the ten largest cities. It is difficult to state definitely why The Bronx differs from other boroughs in this respect. As suggestions we offer (a) a large Jewish population among whom mortality in all boroughs is comparatively low and breast feeding is largely practiced, (b) more modern type of tenement dwellings, (c) less congestion and overcrowding, (d) a larger number of newly-married couples, most of whom have had advantages of more modern education in schools and through the Little Mothers and Health Leagues of the Department on hygiene, sanitation and baby care, (e) the personal and individual care which most of the mothers give their babies instead of entrusting them to care of servants and neighbors, (f) the relatively fewer infant institutions in that borough.

The infant mortality rate among Negroes which, in years past, has been

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inordinately high—about one hundred per cent. higher than among whites—has been held in check, as will be observed from the following:

Infant Death Rate per 1,000 Births Reported.

Year	City Rate	Whites	Negroes
1915	98.2	96.2	202.
1916	93.1	90.7	193.
1917	88.8	87.1	168.9
1918	91.7	89.7	170.8

While the Negro rate is about two points higher than for 1917, it is only part of the increase in the crude and general infant mortality rate which prevailed. At that, the increase is less than among whites and Negroes combined. An interesting feature under this heading is an increase in Negro births for 1918, 3,272 as against 2,614 for 1915, 2,530 for 1916 and 2,990 for 1917.

The Baby Health Stations have been the predominating agency of the Bureau for control of infant morbidity and mortality. In performance of this work the two basic principles applied are the encouragement of maternal nursing and effort to secure enrollment of babies as soon after birth as possible.

Encouragement of Maternal Nursing: A continuous, insistent and persistent campaign of education on the value and importance of breast feeding as a life-saving measure and as a means of increasing bodily resistance against the inroads of disease has been kept up. The majority of infants enrolled at Baby Health Stations were breast fed exclusively or in part and mothers who, upon admission, desired to discontinue maternal nursing or who had done so previously, were instructed in all matters of diet, hygiene, exercise, etc., with a view to securing refunctionating breasts and a continuance or renewal of breast feeding. No child was permitted to be artificially fed unless all measures for maintenance of a supply of breast milk had been tried and found wanting. How well we have succeeded in this policy is shown by the following:

Infants Admitted to Baby Health Stations.

Year	Breast fed exclusively	Breast and bottle fed	Bottle fed
1913.....	54.85	19.60	25.55
1914.....	62.47	17.21	20.32
1915.....	59.0	18.0	23.0
1916.....	68.0	14.0	18.0
1917.....	68.3	13.2	18.5
1918.....	67.0	17.0	16.0

In analyzing character of the feeding at various stations, as well as for the city as a whole, it is found that the highest percentage of breast fed babies occurs among the Jewish and Italian clientele.

Not only has effort been made to increase maternal nursing at Baby Health

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Stations, but as a means of increasing the number of available wet nurses, the inspectors when investigating the genuineness and cause of stillbirths reported by midwives made careful inquiry of the mother's willingness and ability to wet-nurse another baby, after making all necessary examinations. These cases were filed at the Department and a wet-nurse registry was gradually established.

The year lent further corroboration to previous statements of the Bureau as to urgent need of reaching infants as soon after birth as possible, if any appreciable reduction in infant mortality is to be secured.

Deaths in New York City, Under One Year of Age, During 1918.

Age	Deaths	Per Cent. of all deaths under one year
Under 1 month.....	5,118	40.43
One to 2 months.....	1,091	8.62
Two to 3 months.....	849	6.71
Three to six months.....	2,003	15.82
Six to nine months.....	1,855	14.66
Nine to twelve months.....	1,741	13.76
Total.....	12,657	100.00

More than two-fifths of all deaths during the first year take place during first month of life, and over fifty per cent. during first three months. To reduce infant mortality, therefore, it becomes necessary to reach the infant early—the sooner, the better. The high percentage of infant deaths during first month of life is closely correlated to supervision of the expectant mother in that about seventy-five per cent. of all deaths during the first months are due to congenital diseases. The campaign of prenatal care of this Bureau and other coöperative agencies has resulted in increased enrollment at Baby Health Stations of infants under one month of age—from two per cent. in 1914 to over eleven per cent. in 1918, as shown by the following:

Age of Infants Admitted to Baby Health Stations.

Age	1915 Per Cent.	1916 Per Cent.	1917 Per Cent.	1918 Per Cent.
Under 1 month.....	11.66	13.50	11.75	11.00
1 to 2 months.....	22.62	21.10	25.63	26.00
2 to 3 months.....	20.91	17.20	18.28	18.00
3 to 6 months.....	25.26	22.00	22.49	23.00
6 to 9 months.....	11.98	14.20	12.20	13.00
9 to 12 months.....	7.57	12.00	9.65	9.00

Increased effort must be made for enrollment of a larger number of babies during first month of life.

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The popularity of the Baby Health Station service is attested by the increased enrollment from year to year:

Year	Number of stations	Children under 1 year in attendance	Children 1-2 years in attendance	No. of children under 2 years in attendance
1911.....	15	5,006	2,146	7,152
1912.....	55	21,316	9,136	30,452
1913.....	56	26,350	11,293	37,643
1914.....	56	27,165	11,643	38,808
1915.....	59	37,197	8,865	46,062
1916.....	59	39,646	8,656	48,302
1917.....	59	41,496	5,669	47,165
1918.....	59	41,691	4,491	46,182

It is especially encouraging for 1918 that over ninety per cent. of babies under two years of age enrolled were also under one year of age, an advance in this regard over former years. The total enrollment, though slightly lower than for 1917, is exceptionally good, considering the epidemic which made it impossible for many mothers to enroll their babies.

The influence of the Baby Health Stations has shown itself in improved general condition of the children on admission, fewer cases of malnutrition and disorders of digestion, greater personal and home hygiene and cleanliness, and better and more intelligent response to instruction and advice, a more enlightened trend of questioning, an increased confidence in the nurse as a friendly visitor, a better knowledge of first aid in cases of illness and a greater regularity in attendance. The increasing enrollment of a large number of babies from districts beyond station confines and of those who purchase milk from other sources bears testimony that the public has come to look upon the stations as educational centers rather than as milk depots.

The control of station attendance has been modified to produce best results for the largest number. With an enrollment of from 500 to 700 at some stations, proper care and supervision cannot be afforded to the extent desirable. The former policy, therefore, of insisting upon regular attendance for all babies at least once a week has been changed to prevent unduly large clinics, and attendance of babies has been altered to provide that they attend either bi-weekly, weekly or every two or three weeks, according as they are very young, sick, weak or delicate, artificially or breast fed, or entirely well. A definite working schedule was prescribed and cases are considered as active or inactive within their groups. By this means, extremely large clinics, which made it almost impossible for physicians and nurses to give satisfactory attention, have been reduced to reasonable limitation, and babies who need attention most are now being given special consideration.

Provision has also been made to keep an especially watchful eye on babies sick, weak, delicate or suffering from malnutrition, and these are noted on history

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cards as "sick" or "minus" babies. In former years, those babies whose mothers refused to bring them regularly without sufficient cause were dropped from the rolls after every effort had been made to keep them in regular attendance. Now this class of babies, whether enrolled at stations or found on home visit, are kept under observation and followed up at home, where all necessary instruction and advice are given. In other words, a large number of frail babies who formerly were not brought to the stations and therefore failed to receive proper care, have been supervised. This is a definite step forward in infant mortality control and was an outgrowth of our experience in the district visiting by nurses during summer months, where it was found that, of the mothers referred by them at close of summer to various Baby Health Stations, only three per cent. took advantage of this opportunity and enrolled their babies.

Although the milk dispensed at stations is considered the lesser part of their usefulness and influence, the amount sold is necessarily large, since it is dispensed not only to babies who must be artificially fed but also to nursing mothers, expectant mothers, older children suffering from malnutrition or other disorders, cases of pulmonary tuberculosis, school children in open air classes, and adults suffering or convalescing from disease. 5,815,485 quarts were sold as against 5,982,412 quarts in 1917. It would seem at first glance as if the great advance in price during the year would have caused a decided decrease in quantity sold. In fact, the price of milk sold at Baby Health Stations has doubled itself in two years—from eight cents per quart in October, 1916, to sixteen cents in December, 1918. The maintenance of large sales at the stations is due to several factors: (a) the public has become educated to the fact that milk is not only an essential, vital and indispensable food for infants and growing children, but even at advanced price it is the most economical of foods, in that, ounce for ounce at the price, it offers the largest amount of nourishment, health and vitality. The public has come to purchase milk in many cases to exclusion of other less essential and less nourishing foods, particularly for infant and child consumption; (b) the public has learned the economy of paying for a safe, clean, pure milk; (c) no matter what the market price of Grade A milk has been, the same grade always sells at stations for three cents less; (d) a lowering of the bars restricting sales to those who, in normal times, could well afford to pay market price, but to whom, in these abnormal days, the prevailing market price would work a hardship. Milk is the poor man's food and nothing should be left undone to place at his disposal a full supply at lowest price consistent with genuine economic conditions.

To meet the hardships of many families unable to purchase milk for all children of the family, the Mayor's Committee of Women on National Defense distributed some seven hundred pints during August and September, to brothers and sisters of preschool age of infants enrolled at stations. Much benefit was derived from this donation. A large quantity was also dispensed free through the organized charities, through funds given by members of the Women's Auxil-

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iary of Baby Health Stations, funds collected by nurses from personal friends, money received from philanthropic individuals, and money given by nurses and inspectors themselves.

The Bureau has held fast to policy of dispensing milk in quart bottles rather than in prepared individual feedings. The formulæ were regulated by the physicians in charge to fit individual children. Practical demonstrations of prescribed formulæ were given with special care by nurses at the stations and in homes, and repeated until nurses were convinced that the mothers understood. No hard and set rules were outlined for physicians in artificial feeding of infants. Two fundamental principles have been emphasized, however:

- (1) To encourage, urge and secure breast feeding whenever possible;
- (2) To fit the formula to individual needs of the child as regards age, weight, development, digestive capacity and tolerance.

For most part, simple dilutions of whole milk, with addition of various sugars, were used. In difficult feeding cases, various food modifications and preparations were tried. Cases of malnutrition and marasmus were given special attention at stations and in homes, and an effort made in selected cases to have a neighbor nurse the baby or furnish expressed breast milk.

Unfortunately, the infant mortality rate is the only numerical valuation available to show the influence of Baby Health Stations. The true index of infant mortality control is the reflection this work has upon the mortality of later childhood under two and under five years of age. While the latter two rates are somewhat higher than for 1917, as would be expected with an increased infant mortality, they are lower than for 1913, and compare favorably with those of recent years:

*Mortality Rates Under Two Years and Under Five Years per Thousand
Estimated Population.*

Year	Under 2 years	Under 5 years
1913	70.	38.
1914	65.	34.
1915	67.	35.
1916	61.	34.
1917	57.	30.
1918	60.	34.

In order to lower the case incidence of diphtheria among infants and young children who are most susceptible, as determined by Schick test, the Baby Health Stations coöperated with the Bureau of Laboratories in studies of the Schick test and subsequent injections of two or three doses of toxin antitoxin in those giving a positive reaction. Literature was distributed, talks were given, parents urged to have children "Schicked" and injected, homes visited, cases secured, and a general educational drive as to benefits of toxin antitoxin was made. Inspectors

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also gave many of the toxin antitoxin injections. The results of these studies will be compiled by the Research Laboratory.

More intensive surveys of Baby Health Station districts with a view to securing the best available and most economical sites and quarters were made and a special form of investigation and report calling for relevant locality matters—infant mortality, child population, prevailing nationality, intelligence of parents, housing, child-caring agencies, other city-owned or rented places in district, was filled out when the question of renewal or discontinuance of any lease came up.

Educational exhibits at stations included panels on prenatal care, colored panels on motherhood, panels on child care, and a large number of educational placards, posters, leaflets and circulars from the Bureau of Public Health Education, as well as food bulletins, exhibits and literature on war savings stamps, milk and other foods, employment, Americanization, Children's Year, etc.

In order to determine the proportion of various nationalities in attendance at the stations, charts were prepared—for each station, each borough and for the city as a whole—showing by different colors the prevailing nativity of mothers. Twenty-four different nationalities were recorded, those predominating being American, Russian, Italian, Austro-Hungarian, Irish and Polish.

In coöperation with the Bureau of Public Health Education, a series of lantern slides was prepared, consisting of pointed statistics and pithy remarks on importance of infant and child conservation. These were used for lectures given at schools, settlements, churches and other educational centers.

As a further augmented measure of infant mortality control, the address and cause of death of infants under one year of age for all boroughs was received daily by the Bureau and a colored pin map and alphabetical street index kept. This enabled the Bureau to keep in touch with the infant mortality situation in small locality groups and to concentrate attention in a given neighborhood when any or all of the various groups of diseases showed an appreciable increase.

Conditions associated with the war brought an increased and more interested coöperation from many sources, which resulted in much comfort and material relief to many needy and deserving families. This coöperation included the many allied city departments, Mayor's Committee of Women on National Defense, Mayor's Fuel and Milk Committee, Women's Auxiliary of Baby Health Stations, charitable, philanthropic and social service agencies, hospitals, St. John's Guild, Salvation Army, Christ Child Society, After Care Circle, Wholesale Ice Company, Herald Free Ice Fund, newspapers in English and foreign languages, Babies' Welfare Association, Teachers' College, New York Child Welfare Committee, Maternity Center Association, Red Stocking Committee of Brooklyn, Social Service Exchange, Confidential Social Exchange, neighborhood associations, guilds, theatres, etc.

The Mayor's Committee supplied a large amount of fuel, milk and ice to deserving families. Newspapers, the Salvation Army and the Police De-

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partment distributed a large amount of coal during the severe winter. The Women's Auxiliary extended help freely by donating funds for babies and children in want. The ice companies gave liberally during summer months, theatres and movies gave tickets for distribution by nurses, the Social Service Exchange prevented duplication of aid. The Babies' Welfare Association unified and co-ordinated the work of a large number of social agencies and secured prompt relief and attention for cases in hospitals, institutions, nurseries, country homes, foster homes, etc., while the others, each in their own way, assisted in an educational or material manner.

Some of the English, Italian and Jewish newspapers published weekly, during summer months, short articles on "The Baby" as submitted by this Bureau and editorially called attention to importance of the saving of baby life as part of national Children's Year program. All this indicates that child care is no longer considered an individual problem nor the problem of a municipal health department alone. It is now a community problem or a close business partnership of all agencies and individuals interested in child welfare. Such results as are being obtained in this city can come about only through a well organized, co-ordinated and correlated effort of all agencies interested in infants and children with the Department of Health acting as a clearing house.

The control of infant and child morbidity and mortality is more of a socio-economic than a medical problem. The need for social service work has always been with us but it has taken time to arrive. It is now here, never to be relegated to the rear. Its importance during 1918 was more evident than ever and every available source and channel for securing relief has been searched and used by the medical and nursing staffs of the Bureau.

Classes for Mothers: Various classes for mothers have been held by the nurses, among them classes on respiratory diseases, cooking and sewing classes. The fact that respiratory diseases have assumed second place in infant mortality statistics has demonstrated the need of instruction in preventive measures. The early months of 1918 exacted a heavy toll among infants and children because of an unusual prevalence of measles and whooping cough, with their secondary pulmonary complications. Instruction was given at the stations to mothers in groups on importance of ventilation, dangers of overcrowding, coughing, kissing, spitting, sneezing, use of separate eating utensils, towels, toothbrushes, etc., oral and nasal hygiene, care of teeth, dangers of hand-to-mouth infection, isolation of all sick children and adults suffering from coughs or colds, etc.

Cooking classes by nurses or by trained dietitians from various coöperative agenices were held regularly to educate mothers in proper nutritive value of food-stuffs for growing children and in proper and most economical methods of purchase, preparation and care of food. With reduced purchasing power of the dollar, it was very important to show them how to spend what little they had most advantageously and profitably. These classes laid particular stress upon value

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of milk and the many ways in which it could be prepared to suit the taste and food habits of different nationalities.

Sewing classes were conducted mainly for expectant mothers and demonstrations of how to prepare at a small price the articles for the new arrival and for confinement were held at regular intervals. In many instances material for these classes was furnished free by one or another of the coöperative agencies, so that a decided saving for many mothers was effected.

Most of these classes were well attended and not infrequently, in order to make them sociable and to place the mothers in a happy frame of mind, the nurses provided refreshments. To mothers of the tenements who seldom are afforded opportunity for relaxation, these classes give a healthy mental attitude and inspire a confidence in the service which must be seen to be appreciated.

Baby Health Stations as Centers for Other Activities: Other departmental and local activities have centered around Baby Health Stations. They have come to be recognized as community or neighborhood centers to which most inhabitants of the vicinity come for advice and instruction which relate to the family. During latter part of the year they were used for sale of eggs below market price, the eggs being delivered by Department of Public Markets and the sale conducted by nurses of the stations to all who desired to purchase. While this sale was surrounded with numerous difficulties, annoyances and irregularities and interfered with station routine and service, it served to place in the hands of a needy public a valuable article of food at reasonable price.

Vaccinations have been performed the year round, midwives' and mothers' meetings have been held, Little Mothers' Leagues have met there, groups of high school girls have been given practical demonstration in baby care and food preparation, social service, philanthropic, child-caring and other agencies, as well as maternity centers, have been afforded desk room; public health students, social workers, doctors, nurses and other workers from all parts of the world have been instructed in station activities and service; local baby improvement contests have been held; every facility has been offered to various Mayor's Committees and representatives of the national government; many activities of Children's Year have been conducted. In a word, all efforts for unifying the care of infants and children have been grouped and developed about these stations.

Little Mothers Leagues: The Little Mothers Leagues, composed of school girls twelve years of age and over, have been part of the Bureau organization for almost ten years, and have been organized and conducted in many public and parochial schools. As such, they have been largely a summer institution. The need for conducting these leagues the year round has long been felt and such organization has been effected at Baby Health Stations, the majority of which have had such leagues for two years.

The school leagues, in many cases, meet at stations during the summer and then become incorporated with permanent Baby Health Station leagues. Thou-

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sands of school girls come under educational influence of inspectors and nurses through these leagues and not only carry daily lessons of child care, hygiene and sanitation into their homes but take better care of their baby brothers and sisters, to say nothing of becoming better prepared for exacting duties of motherhood. Many of these leagues have formed cooking classes in addition to regular programs, and have been taught by the nurses and by dietitians from the United States Food Bureau and allied agencies the principles of proper purchase, preparation, care, nutritive value, etc., of various foodstuffs. They have served as a wedge for furtherance of Americanization program of the national government and have prove gratifyingly responsive in working for the Red Cross, war savings stamp campaign, welfare boards and other war activities. Instances of funds collected by them and applied to needy families are every-day occurrences.

Little Mothers Leagues conducted during year.....	143
Meetings held.....	1,753
Members in attendance at meetings.....	70,692
Members enrolled	8,836

This organization has no doubt been of material benefit in controlling the infant mortality of the city. It will readily be seen that with fifteen to twenty thousand girls being taught child care annually, spreading and practicing the gospel of "keep the baby well," and with the undertaking of duties and responsibilities of motherhood in later years, the municipality has at its disposal an ally, a volunteer organization of great value.

Home Visiting Control of Infant Mortality.

Supplemental to the control of infant mortality through Baby Health Stations, the Bureau during July and August supervised infant life with an augmented force of nurses from the Division of School Medical Inspection. The nurses were assigned to special districts in which an analysis of small sanitary areas or census tracts had shown high infant mortality and birth rates. Each nurse was held responsible for the enrollment, supervision, care and follow-up of 150 infants in her respective district, and in event of removal, death or refusal to accept service, the nurse was required to make up the deficit by canvass of the neighborhood for other babies. Visits were made to well babies at least once every ten days and to sick, delicate or weak ones as frequently as required. The district nurses made their headquarters in most cases at adjoining Baby Health Stations and conferences were held daily with inspectors who visited the homes of sick and subnormal babies and prescribed all necessary treatment and advice for care of cases of gastroenteritis and disorders or diseases of nutrition. First aid or emergent treatment was also given in cases ill with other diseases. Special attention was directed to sections in which were large numbers of Negro or Polish infants because of well-known high mortality rate among them. In these instances, to secure more intensive follow-up and instruction, the quota of in-

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fants under supervision per nurse was frequently reduced to 100 or 125. As in the regular station service, the volume of this work was below that of former years, largely because of failure to appoint temporary nurses until August instead of in June, which necessitated use of many school nurses in the Baby Health Stations.

At the expiration of summer the babies under supervision by district nurses were referred to neighboring Baby Health Stations for a continuation course of advice and the mothers were urged to attend regularly. Unfortunately only some three per cent. of these mothers subsequently took advantage of station opportunities. Irrespective of how many Baby Health Stations are maintained there will always be a large number of mothers who refuse to bring their babies to these centers for various reasons and who cannot be reached through the stations because of limited working force. Again, it is sadly true that very often babies who need care most never reach the stations because of ignorance or carelessness of their mothers. A combination, therefore, of station service the year round and home visiting during summer months has proved of distinct usefulness. Infant mortality control during summer months, through home visits, has been conducted by the Bureau since 1911. From 1911 to 1918 inclusive, 146,174 babies under one year of age were kept under observation, with 1,304 deaths during period of observation—a very creditable showing and an idea of what would be accomplished if funds were available for maintenance of a district corps of nurses the year round.

District Visiting by Nurses of Bureau of Child Hygiene During July and August.

Year	Babies under one year of age under supervision	Sick babies treated	Deaths from diarrhoea	Deaths from other causes	Total
1911.....	16,987	3,382	Not tab	ulated	237
1912.....	22,417	1,872	86	121	207
1913.....	18,609	1,211	89	93	182
1914.....	17,826	781	47	64	111
1915.....	19,109	620	90	91	181
1916.....	17,563	934	65	134	199
1917.....	14,594	18	42	49	111
1918.....	19,069	.....	42	34	76

The majority of sick babies during this period were referred to Baby Health Stations.

PHYSICAL EXAMINATION OF CHILDREN OF PRE-SCHOOL AGE.

For a great many years the Bureau has recognized a gap in its administration of child hygiene activities between the Baby Health Station child and the school child. This gap is the proper supervision of children of pre-school age—from two to six years. The best time to take care of the school

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child is before he enters school rather than after, just as the best time to look after the baby is before he is born.

The Baby Health Stations, established and maintained primarily for care and feeding of babies under two years of age, have not lent themselves to any extended supervision of these pre-school age children, because of an increasingly widening scope and volume of infant and early childhood care, necessitating a corresponding increase of time and energy of the medical and nursing staffs. The mothers, too, we find, have all they can do to look after the baby or babies at time of visiting the stations and do not favor bringing a pre-school age child for examination, in addition.

During 1918, these examinations at stations were comparatively few for these reasons, and because of the disturbed status of medical and nursing forces resulting from war conditions, influenza, etc. As part of the Children's Year program, however, 1,275 children between two and six years of age were weighed, measured and examined at stations, the data recorded on official national card, parents notified of subnormal or abnormal conditions and urged to place their children under proper medical or other supervision. The annual report of the Bureau records 1,838 pre-school age examinations. This includes the 1,275 noted, leaving a balance of 563 examinations performed in routine station way, but for which unfortunately, no definite data were kept as to number found defective, defects found, etc., as in former years. Of the 1,275 children examined 338 or 26.5 per cent. were found to have physical defects—275 (21.5 per cent.) with general defects and 63 (5 per cent.) with defective teeth as the only defect. The percentage of general defects is somewhat below that of school children, partly because no proper vision tests could be made, while percentage of defective teeth is naturally far less, for evident reasons.

Sufficient evidence has been produced in former years to indicate the extreme importance of these examinations and the influence which a proper correction of physical defects at this age would have upon the educable capacity and progress of the school child. This work is one of the public health problems of the future and one of enormous magnitude when it is remembered that estimated population of the city between two and six years of age is almost half a million—about half the estimated school population. Furthermore, when it is considered that the entire working medical force of the Division of School Medical Inspection examined approximately 250,000 school children in 1918, it is easily seen what a large working force would have to be provided to make any definite impression upon the status of children of pre-school age. The problem is one for the community rather than for the Department of Health, and if it is to be solved, ways and means for these examinations at various centers, such as schools, settlements, clinics, Baby Health Stations, etc., must be devised or the public must be educated up to necessity of having these children examined periodically by private physicians.

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SCHOOL MEDICAL INSPECTION.

The work of school medical inspection at present is carried on in the following schools:

	<i>Number</i>	<i>Total Registration</i>
Elementary public schools.....	513	758,208
Elementary parochial schools.....	214	138,186
Kindergartens	46	2,244
Total	773	898,638

Serious inroads have been made in medical inspection service owing to conditions directly related to the war. Not only has the staff not been increased in size to meet increased problems, but there has been throughout the year a continuous succession of vacancies in staff of medical inspectors and nurses, amounting in certain boroughs to a decrease of one-third of entire working staff. As a result, the established program in regard to school medical inspection had to be changed in many particulars and the available staff has been diverted to those channels where need was most emergent. This action has been necessary not only as to conditions which needed immediate attention in school medical inspection service but staff has been called upon to help out in other divisions and bureaus of the Department which have been handicapped by similar vacancies. For instance, both school doctors and nurses had to be used as assistants in issuance of employment certificates under the Cowee law which allowed for special summer vacation employment certificates. The Bureau of Records was unable to handle clerical work in connection with searching birth records to be used in army draft and it was necessary to detail a large number of school nurses as searchers and clerks. Continued vacancies in work of supervision of midwives and foundlings made it essential to detail school doctors and nurses temporarily for that purpose. As strictly emergent work, certain school medical inspectors volunteered and were assigned to special duty at Perth Amboy in connection with explosion of munition works there and, finally, the epidemic of influenza led to almost complete abandonment of the program of examination of first, third and sixth year children in regular order.

Under section 200 of Sanitary Code, parents are allowed to have their children examined by private physicians instead of school doctors. In previous years advantage was taken of this permission to extent of from ten to fifteen per cent. of children entering school for first time. During 1918 only about three per cent. were so examined, leaving a greater burden for the already depleted staff of medical inspectors. Another reaction of the war was found in the difficulty in obtaining treatment for children. The staffs of many dispensaries and hospitals were so seriously reduced by enlistments that it was extremely difficult to find sufficient opportunities for proper treatment of children with physical defects. On the other hand, there has never been such excellent coöperation from officials of the Department of Education. Teachers have

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been particularly alert in detecting, as soon as classes assembled, the children who showed any signs of illness, and referring such cases to school doctor or nurse. Routine examinations for defective vision, hearing and teeth made by teachers in classrooms have resulted in referring to medical inspectors an unusual number of cases. During the epidemic many interviews and talks by the supervising staff to district superintendents, principals and teachers in schools resulted in gratifying mutual understanding. For this reason, the work accomplished has been extraordinarily effective and gives promise of what may be accomplished in future. Adequate school medical inspection cannot be carried out without full coöperation of the teaching staff, but it probably would be wiser to spend more money in employing doctors and nurses than to require an already overburdened profession to assume duties not properly belonging to them. If teachers are to continue, however, in extensive coöperation in school medical inspection work, instruction in health supervision of school children should be made part of teacher's training course, and such training should not be the type of instruction that may be given by the school doctor or nurse.

Epidemic of Influenza.

When New York found itself facing an epidemic of influenza, a question requiring immediate answer was whether it would contribute to control of the epidemic to have public and parochial schools close. After consideration it was decided to be of utmost importance that schools be kept open, and that health supervision of school children be kept at highest possible standard and some system devised whereby school children could be inspected daily and kept under proper health control. All other school medical inspection work was stopped except the emergent supervision and control of infectious diseases. The procedure adopted was as follows:

At opening of school each teacher carefully inspected all children in classroom and referred immediately to the doctor or nurse any children showing symptoms of illness.

Each school was visited daily by a nurse for purpose of examining suspected cases referred by teachers.

The registration of children in attendance and number of absentees were ascertained and telephoned to central office of this department daily.

Names and addresses of all children absent were obtained by the medical inspector or nurse and a home visit made in each instance for purpose of proper diagnoses.

The nurses made continuous routine inspection of all children in classrooms for purpose of detecting any cases which might have escaped observation of teachers.

The medical inspectors and nurses gave frequent talks to teachers and children regarding precautions to be observed to prevent spread of contagion, particular stress being laid on personal hygiene.

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A system was inaugurated of continuous observation of school buildings and playgrounds, with particular reference to cleanliness, ventilation and other sanitary and hygienic measures. Special inspections were made to determine overcrowding or violations of Sanitary Code.

Circulars relating to precautions to be taken to prevent spread of the disease were distributed among teachers and children.

In all instances where a nurse found that her time was not fully occupied by school duties, she was assigned to actual nursing of sick children who had attended classes under her supervision.

These procedures resulted in a feeling of security in schools and an almost immediate abatement of the hysteria which had led many parents to keep children at home. In early stage of the epidemic some schools recorded as high as fifty per cent. of absentees. Investigation showed that the great majority of these were kept home because of fear of parents and not the existence of any specified disease. When parents became assured that children's health would be carefully guarded at school, the percentage of absenteeism declined rapidly and during latter part of the epidemic was no greater than normal.

Just what effect this procedure had upon progress of the epidemic is difficult to determine and no dogmatic assertion can be made regarding advisability of keeping open the schools in the event of such a spread of infection unless a comprehensive survey can be made of various cities who have taken this action.

General Contagious Diseases.

The number of general contagious diseases found in schools shows a marked reduction over previous year. 1,844 such cases were diagnosed and excluded as compared with 4,647 during 1917. The system of checking all cases reported to the Bureau of Preventable Diseases with roster of various schools and classes precludes possibility of more than an occasional case being overlooked. This situation reflects the general lower morbidity rate of various contagious diseases in the entire city. It is also gratifying evidence that parents are becoming more keenly alive to necessity of detecting early symptoms of disease and keeping children out of school.

Contagious Eye and Skin Diseases.

The total inspections of school children was 7,117,157 as compared with 6,813,475 for 1917. However, the number of contagious eye and skin diseases discovered and excluded was materially less than for 1917.

	CASES FOUND		CASES EXCLUDED	
	1917	1918	1917	1918
Pediculosis.....	231,378	209,991	6,988	8,535
Trachoma.....	4,327	2,052	51	82
Conjunctivitis (acute).....	16,655	13,697	1,661	1,763
Ringworm.....	3,610	3,474	83	112
Scabies.....	2,134	1,795	149	159
Impetigo.....	15,056	11,239	152	190
Favus.....	292	389	12	93
Conjunctivitis (follicular).....	1,573	864	213	45

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The types of these diseases found were comparatively mild and yielded readily to treatment. Severe cases, warranting exclusion, were approximately same as in 1917 with exception of conjunctivitis and trachoma, where the number was distinctly lower. This may be explained in part by a somewhat changed opinion as to diagnosis of trachoma, with possibly more accurate diagnoses at present time.

The depletion of force and detail of nurses to special duties, as well as the epidemic of influenza, are reflected in the marked decrease in instructions and treatments given children for contagious eye and skin diseases and for physical defects.

	1917	1918
Instructions and treatments for physical defects.....	646,976	232,502
Instructions and treatments for contagion.....	2,741,075	976,729

Visits by Nurses to Homes.

There was a marked increase in number of visits made by nurses to homes where presence of contagious disease was suspected, amounting to 14,999, as compared with 6,372 in 1917. This work, which was of utmost importance, was productive of excellent results in allaying hysteria due to epidemic conditions, also in preventing spread of infection, and while not strictly in line with regular school medical inspection activities, was justifiable and essential.

As a consequence of necessarily increased visits to cases of suspected contagious diseases, the visits by nurses to homes of children suffering from physical defects dropped from 289,420 in 1917 to 241,189 in 1918. The total visits by both inspectors and nurses decreased from 371,321 in 1917 to 342,208 in 1918. Part of this decrease must be charged to lower number of inspectors and nurses on duty, due to vacancies left unfilled.

Detection of Physical Defects.

In previous years it had been the practice to examine children in regular order—those entering school for first time, special cases referred by teachers and nurses, then those in third and sixth grades, so that each child was assured of physical examination three times during school life. The routine procedure of the Bureau, however, has been distinctly interfered with during the year and the total physical examinations amounted to only 247,735 as compared with 328,190 in 1917. Re-examinations of children after defects have been remedied have also dropped, from 110,983 in 1917 to 94,304 in 1918. Considering that for many months the staff of school medical inspection service was reduced by approximately one-third, the total work performed is extremely encouraging. Another factor of the lessened number of physical examinations during 1918 was that a large number of schools were closed for a month due to shortage of coal and extremely cold weather.

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The proportion of physical defects found on examination differs little, if any, from previous years.

	1917		1918	
	Number	Per cent.	Number	Per cent.
Physical examinations made.....	328,190		247,735	
Children with defective teeth only.....	145,109	44.2	104,687	42.2
Children with defects other than of teeth only.....	111,463	33.8	86,311	34.8
Physical defects found:				
Defective vision.....	33,361	10.0	23,362	9.4
Defective hearing.....	2,026	.6	1,214	.4
Defective nasal breathing...	35,898	11.0	25,168	10.0
Hypertrophied tonsils.....	45,939	14.0	33,475	17.5
Cardiac disease.....	5,998	.2	3,979	1.2
Pulmonary disease.....	914	3.0	742	.2
Orthopedic defects.....	3,096	.9	1,989	.7
Nervous affections.....	2,088	.6	1,504	.6
Defective teeth.....	222,642	68.0	161,686	65.2

It is interesting to compare occurrence of physical defects in school children to-day with conditions in 1909. Particularly marked reductions have been made in hypertrophied tonsils which were found in 22 per cent. of children in 1909 and 17.5 per cent. in 1908. Defective nasal breathing also shows a decrease from 18.1 per cent. in 1909 to 10.0 per cent. in 1918. Slight difference is shown in occurrence of other defects with exception of undernourishment.

Malnutrition.

The increase in number of children found undernourished has formed one of the most serious problems confronting the Bureau. During the last four years the proportion of undernourished children has steadily increased. In 1909 only 3.1 per cent. were found undernourished. In 1914, when war began, 5 per cent. were found suffering from malnutrition. This probably represents the average that may be expected during normal times. In 1915 the proportion had increased to 6 per cent. In 1916 17 per cent. were reported undernourished while a special survey of all school children in Manhattan made in December, 1917, showed 21.6 per cent. definitely suffering from malnutrition. Particular effort was made during 1918 to meet this alarming condition. In every possible way interest of the public was stimulated. Public meetings were held and co-operation of various organizations sought. The nurses of the Bureau were specially instructed in methods of child feeding with particular reference to substitute foods used during war period. Clinics were held at Baby Health Stations, both during 1917 and 1918, where mothers were instructed in adjustment of family budget to purchase of food, with particular reference to needs of the child. Special experimental studies were carried on with private agencies to demonstrate value of the school lunch. The Bureau coöperated in this propaganda

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and school nurses, as well as Baby Health Station nurses, carried on intensive work in instructing individual mothers in proper feeding of children. It has been evident that this undernourishment of children has been a direct outcome of economic conditions resulting from the war.

The vastly increased price of foodstuffs as well as other essentials of living, with the slight increase in wages, resulted in a decreased buying power of the dollar, which rendered proper child feeding almost an impossibility for a large number of families. Even when money was available the use of substitute foodstuffs unfitted for proper nourishment of the growing child, as well as the ignorance of parents as to food needs of children, have resulted in the serious condition of undernourishment which exists at present. Inquiries made seem to show, however, that practically all children of the United States have shown a similar, if not so extensive, reaction. According to report of the General Medical Officer of Board of Education for England for 1917, the undernourishment among school children in London was between eleven and twelve per cent. During same year, 21.6 per cent. of the children in Manhattan were undernourished. As a result widespread propaganda during 1918, \$50,000 was appropriated for establishing a Bureau of School Lunches in the Department of Education of this city. It is expected this money will be used to cover overhead expenses, as school lunches can be made practically self-supporting when cost of the food only is involved. The school lunch, however, should do more than feed the children. They should serve as educational centers from which will radiate proper instruction of mothers in proper feeding at home. This educational value is as essential as actual provision of the food.

Special data compiled regarding the nutrition of 184,374 school children shows the following grading, according to Dunfermline scale:*

Type of Nutrition	Number	Percentage
Grade 1	40,978	22.3 per cent.
Grade 2	108,290	58.7 per cent.
Grade 3	29,254	15.8 per cent.
Grade 4	5,852	3.2 per cent.

It may be seen, therefore, that, including the Grade 3 and 4 children who are definitely undernourished, the percentage has been reduced from 21.6 per cent. in 1917 to 19 per cent. in 1918. Continued effort will have to be made to reduce this total percentage to a pre-war status. There can be no expenditure of public time or funds so essential. Undernourishment of the growing child is a vital menace to future welfare of the country. Undernourishment occurring dur-

* According to Dunfermline scale:

Grade 1 "excellent" means nutrition of a healthy child of good social standing;
Grade 2, children whose nutrition falls just short of this standard are "good";
Grade 3, children "requiring supervision" are on borderline of serious impairment;
Grade 4, children "requiring medical treatment" are those whose nutrition is seriously impaired.

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ing this period of life is almost never completely cured. The individual always shows a certain lessened resistance to disease. The undernourished child of this generation will probably be the victim of tuberculosis of next generation. When one considers the enormous price which must be paid in lowered health conditions, increase in preventable diseases and human misery as a result of the widespread undernourished condition of children of this generation, no price seems too great to pay for bringing about conditions where a repetition of this disastrous result will be impossible. Even if viewed solely from the economic side, it is evident that cost of assuring proper care and feeding of children at present time will be infinitesimal in comparison with economic loss resulting from increased tuberculosis incidence and death rate and loss of productive capacity due to other illness and death as a result of continued undernourishment of growing children.

Nutritional Grading of School Children, Year 1918.

	Grade 1	Grade 2	Grade 3	Grade 4	Total
New York City					
Public schools.....	35,606	92,588	25,346	5,205	158,745
Parochial schools.....	5,372	15,702	3,908	647	25,629
Total.....	40,978 (22.3 per cent.)	108,290 (58.7 per cent.)	29,254 (15.8 per cent.)	5,852 (3.2 per cent.)	184,374 (100.0 per cent.)

Treatment for Physical Defects.

The net results of effectiveness of that part of the system of school medical inspection which has to do with detection and correction of non-contagious physical defects must rest upon the proportion of these defects which received treatment. Free medical treatment has been extremely difficult to obtain, due to the reduction of medical forces of various dispensaries and hospitals and it has been necessary for the nurses of the Bureau to expend an enormous amount of excess energy and time. Therefore, it is felt that results are distinctly encouraging. While actual number of cases treated is less than in former years, the percentage as compared with number of children examined, are distinctly higher in most instances:

Physical Defect	1917		1918	
	Number treated	Per cent.*	Number treated	Per cent.*
Defective vision.....	17,880	53.5	14,703	62.5
Defective hearing.....	942	47.4	750	61.9
Defective nasal breathing.....	16,395	45.6	11,412	45.3
Hypertrophied tonsils.....	18,847	41.0	13,930	41.5
Cardiac disease.....	2,337	38.9	1,925	48.3
Pulmonary disease.....	601	65.7	521	72.9
Orthopedic defects.....	1,058	34.1	769	38.1
Nervous affections.....	1,135	54.3	765	50.8
Defective teeth.....	45,013	20.2	29,839	18.3

*Based on number of indicated defects found.

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Special Experimental Work.

In 1917 it was determined to install in one school of the city a system of school medical inspection which would be as nearly ideal as possible. This work was continued during greater part of 1918 and a report of results can now be given.

Public School 21, Manhattan, with a registration of 2,500, was chosen for the purpose. It is located in the heart of a district distinctly Italian. The financial condition of the inhabitants, despite their thrift, cannot be termed prosperous. The dispensary and hospital facilities of the district are limited, therefore the experiment has been carried on under rather adverse conditions. Absolute co-operation was assured by the principal of the school, Mr. Pugliese. The school was particularly appropriate for the work because it already had a school lunch, classes for the blind, mentally, defective and crippled, open air classes. In addition, the Department of Health installed a dental clinic and an eye clinic.

For greater part of the year one medical inspector and one nurse confined their entire time and attention to pupils of this school. As a result, a more intimate relationship than ever before was established between the medical inspector, nurse, teacher, parent and child. This led to examination of many children in presence of their parents, when physical defects could be explained in detail. The physician explained benefits which might be expected from adequate treatment, and this was obtained by parents in many instances without need of home visits by the nurse. Where parents were unable to be present at examinations, they usually responded promptly to a request to call at the school for purpose of consulting with the doctor in regard to health condition of their children. The doctor and nurse were present daily, which made it possible for parents to drop in at their own convenience. The children quickly became imbued with the idea that a kind of health game was in progress and did their best to help it along. In many instances children presented themselves to the doctor with the statement that eyes, throat or some other part of the anatomy needed attention.

Routine inspection was made by the nurse daily and a large number of minor contagious disease cases were referred to her. A marked reduction in number of cases found during spring term of 1918 is shown, as compared with spring term of 1917:

Cases of Minor Contagion Found	Spring Term 1917	Spring Term 1918
Pediculosis.....	1,148	741
Trachoma.....	13	4
Conjunctivitis.....	122	8
Scabies.....	10	5
Impetigo.....	75	31
Total.....	1,368	789

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There was a marked improvement in attendance. Absenteeism was reduced to six per cent., which is below average for elementary schools.

The total physical examinations performed in 1918 was 1,618. This was not as large a number as should have been made and all pupils were not examined, owing to necessity for assigning the medical inspector to assist with adjoining groups of schools occasionally because of vacancies in medical staff of the Bureau.

The percentage of physical defects found was approximately same as in previous year. The number of defects terminated with effective treatment during second year of the experiment materially increased. For instance, one hundred more children obtained glasses than during previous year; 62 more operations on nose and 76 more tonsil operations were performed; 539 more children with defective teeth secured treatment. The percentage of children with undernourishment continued high despite that a larger amount of time was devoted to educating them and their parents as to nutritive value of different kinds of foods and those giving most nutrition for least money.

Special Experiment in School Medical Inspection.

P. S. 21, Borough of Manhattan.

	Registration of school	No. of classes	No. of absentees	Cases referred to nurse—minor contagion
Fall of 1916.....	2,528	61	573	210
Spring of 1917.....	2,338	60	121	199
Fall of 1917.....	2,373	61	117	207
Spring of 1918.....	2,425	60	154	220

	Physical Defect Cases specially referred to inspector	Total physical examinations made
Year 1916-1917.....	703	1,369
Year 1917-1918.....	804	1,618

Physical Defects Found	Year 1916-1917	Year 1917-1918
Defective vision.....	240	193
Defective hearing.....	11	8
Defective nasal breathing.....	184	182
Hypertrophied tonsils.....	269	191
Defective nutrition.....	291	326
Cardiac disease.....	14	24
Pulmonary disease.....	20	1
Orthopedic defects.....	15	8
Nervous affections.....	11	10
Defective teeth.....	904	1,046
Children found with defects other than of teeth only.....	528	734
Children found with defects of teeth only.....	514	738
Re-examinations.....	1,042	2,279
Special examinations.....	350	291

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Physical Defects Terminated	Year 1916-1917	Year 1917-1918
Defective vision:		
Improved.....	32	132
Unimproved*	2	4
Defective hearing:		
Improved.....	2	8
Unimproved*		
Defective nasal breathing:		
Improved.....	33	95
Unimproved*		2
Hypertrophied tonsils:		
Improved.....	45	121
Unimproved*	1	1
Malnutrition:		
Improved.....	3	24
Unimproved*		
Cardiac disease:		
Improved.....	1	1
Unimproved*		
Pulmonary disease:		
Improved.....	1	
Unimproved*		1
Orthopedic defects:		
Improved.....	1	1
Unimproved.....		
Nervous affection:		
Improved.....		4
Unimproved*		3
Defective teeth:		
Improved.....	85	624
Unimproved*	6	50
School Consultations:	106	147
Home visits by medical inspector in re:		
Physical defects.....	187	433
Contagion.....	25	52
Special visits.....	50	72
Septicaemia.....	2	
Stillbirths.....	1	3
Sick babies.....	4	5

	Fall, 1916	Spring, 1917	Fall, 1917	Spring, 1918
Cases of Minor Contagion Found:				
Total routine inspections....	10,289	14,050	20,161	14,167
Pediculosis.....	480	1,148	885	741
Trachoma.....	30	13	7	4
Conjunctivitis.....	55	122	113	8
Ringworm.....	4	4	3	6
Scabies.....	2	10	5	5
Impetigo.....	57	75	51	31
Molluscum contagiosum.....		1	2	1
Other eye diseases.....				55

*Cases reported "unimproved" are those which have removed before securing treatment or which have definitely refused to obtain treatment.

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	Fall, 1916	Spring, 1917	Fall, 1917	Spring, 1918
Minor contagious diseases terminated:				
Pediculosis.....	56	441	261	209
Trachoma.....	4	5	.....	2
Conjunctivitis.....	32	84	75	8
Ringworm.....	1	4	1	5
Scabies.....	2	7	3	4
Impetigo.....	9	75	38	29
Molluscum contagiosum.....	.....	1	.....	1
Other eye diseases.....	.....	.....	.....	31

It must be considered that the assignment of a doctor and a nurse for health supervision of twenty-five hundred school children, in addition to services of a dentist and an oculist with their attendant nursing service, should result in an extraordinarily high standard of health conditions among children so supervised. It is possible that selecting a school in an Italian district constituted a handicap, owing to the great difficulties in educating parents of this race group to the extreme necessity of providing medical attention for their children but, even taking this into consideration, together with lack of facilities for free medical treatment in the neighborhood, it is not felt that the experiment was of sufficient value to warrant its extension to other parts of the city. The expenditure required to have one doctor and one nurse for each 2,500 children would be so great that remarkable results would have to be shown to justify its being applied to the city at large. School medical inspection, in itself, while of vital importance, needs and must have the coöperative influences of adequate provision for medical treatment of children, and coöperation in the home.

In health supervision of the child of school age, the school environment is not necessarily the predominating factor. The school offers an easy way by which the child may be reached. The child is in school five hours of the twenty-four for approximately 190 days of the year. The rest of the time it is under influences which cannot be controlled by school authorities. If its health is to be adequately cared for, therefore, not only must the school environment and conditions be maintained at a high standard, but all conditions affecting the child in its out of school life must be continuously supervised and adjusted. Unless full coöperation of parents be assured it, therefore, does not seem justifiable to expend an excessive amount on maintenance of one doctor and one nurse of twenty-five hundred school children. It is the belief of this Bureau, from its experience, that under city conditions a medical inspector can care for at least five thousand children and a nurse for each three thousand. Compared with present assignments of one doctor to each nine thousand and one nurse to four thousand, the proportions recommended are as nearly ideal as may reasonably be expected.

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Dental Clinics.

For six years the Bureau has maintained eight dental clinics with a force of one supervising dentist and nine dentists assigned to operative work in the clinics. This number of dentists is totally inadequate to cope with the number of dental defects found in children of public and parochial schools. Indeed, it is doubtful if the city could ever afford to appropriate a sufficient sum to do the amount of corrective work that would have any effect upon the number of dental defects existing at present. Various cities have, through private funds, been able to erect model dental clinics with a capacity sufficiently large to meet their needs, but, at best, corrective dental work is a losing proposition. The amount of work done in any year does not prevent an equal need for the next year.

It has been the policy of the Bureau, therefore, with its limited force, to concentrate its activities upon preventive dental work. For this reason, these dental clinics are widely scattered, one in The Bronx, two in Manhattan, four in Brooklyn and one in Queens. These clinics are central offices, serving as large a proportion of the schools as their capacity will admit. The method of work has been wholly prophylactic. As far as possible, the children in the entering classes of schools are referred to the clinic for examination and the slight repair work usually necessary at that time. In addition, the dentist and dental nurse instruct them in methods of mouth hygiene. They are taught the importance of clean mouths and required to report back to the dentist at least once in six months for re-examination and repair of slight defects. In addition to this, every child physically examined in the schools who is found to have dental defects is given instruction in oral hygiene and tooth brush drills are a regular part of duties of the school nurse.

During 1918 the dental staff was increased by appointment of three dental hygienists. They served as splendid assistants to the dentists and were used almost entirely for educational dental work among children. Owing to necessity of economy, this force was not provided for in the budget for 1919, but it is felt that not only should these three positions be restored to the Bureau but a large additional force of dental hygienists could be used with great value in promotion of proper dental hygiene of school children.

In addition to the class of children referred to, the clinics have done certain distinctly corrective work in treating children whose employment certificates have been temporarily withheld because of defective teeth. Such children have been given precedence in having their mouths put in proper dental condition.

Dental work on mouths of child candidates for tuberculosis preventoria is also considered a most important step in prevention of that disease and they likewise have received attention at the clinics. The work in these two directions has increased to such proportions that eventually it would be wise to have a separate dental staff for it. The clinics of the Bureau should be held for preventive dental work for school children, considering the limited force at disposal.

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Any amount of added corrective work encroaches so much upon the preventive side that very little of the latter can be carried on.

The need for dental clinics in the schools seems to be acute. Throughout the year the Bureau is constantly in receipt of requests from principals of schools for similar clinics in their schools. It would be possible to establish a clinic in each school of the city and to keep each fully occupied.

Worker Performed in Dental Clinics.

	1917	1918
Cases brought forward from 1917.....	3,675	3,698
New cases registered.....	8,069	7,116
Revisits.....	13,434	10,390
Visits to dispensary.....	21,503	18,306
Discharged.....	6,220	6,206
Cured.....	6,070	6,035
Dropped because of removal, failure to attend, etc.....	150	171
Cases pending.....	5,517	4,647
Treatments given.....	60,375	59,019
Extractions.....	18,187	18,292
Deciduous teeth.....	13,894	13,979
Permanent teeth.....	4,293	4,313
Fillings.....	22,849	16,236
Temporary.....	1,800	558
Permanent.....	21,049	15,678
Cleanings.....	6,309	6,253
Other.....	9,573	5,351
Visits by dental nurses to homes.....	443	940

Eye Clinics.

Nine eye clinics are maintained by the Bureau, five in Manhattan, two in Brooklyn, one in The Bronx, and one in Queens. Their work has remained practically the same as last year, viz.: the detection and treatment of all contagious eye diseases in school children; detection of refractive errors and their correction if child is unable to pay for private treatment; detection and supervision of partially-sighted and blind children and their treatment where unable to pay for private treatment. Each clinic has a staff of an oculist and a nurse.

This year, in addition to eye cases found by school medical men and nurses many cases of refractive errors were found by teachers. This feature is possible of great expansion if a working plan can be created between this Department and the Department of Education whereby all children may be given a vision test by the teacher of each class at beginning of each term. The test should be in accordance with a set of simple rules to be furnished by the Supervising Oculist of this Bureau instead of in unsupervised manner now in force.

The effective work of the clinics has been curtailed to a certain extent by loss of assistance of school nurses in the follow up in homes, due to great demands made upon the nurses by influenza work. The clinic nurses have done remarkably well. In addition to their many duties as registrars, clinic nurses, etc., they have



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also, in several instances, assisted in clerical work, typewriting reports, cleaning work in clinics usually done by Department cleaners—all made necessary by shortage of help. There is, however, more assistance needed in the follow up work in homes to carry out treatment prescribed in many cases, as we have a list of several hundred children whose cases have not been terminated and the clinics have lost touch with them because of their failure to return to clinics at appointed times.

The success obtained last year in treatment of trachoma and follicular conjunctivitis by the intense bichloride rub has been continued with like results. The negative galvanic treatment of corneal opacities has been further developed and is being extensively used at the special clinic for sight conservation class at P. S. 30. About twenty-five cases are now under treatment and results are surprisingly good after a course of treatment of about one year. Vision in some cases has been improved from 20-100 to 20-30.

The tuberculin treatment for tubercular keratitis is also meeting with some success and is being extended gradually to all of our clinics.

The special work of sight conservation and blind classes is developing in magnitude. The blind classes continue to teach the Braille method and other educational work. At present there are nine blind and eighteen sight conservation classes, and more classes have been authorized.

Some highly practical results have been obtained since the Bureau took over this work, as for example, by combined efforts of principals, teachers, medical inspectors and nurses, after special instructions by the Supervising Oculist, a large number of children with vision in the better eye of 20-70 or worse have been found, taken to our clinics, and over four hundred have since been returned to school with practically normal vision after treatment or refraction. These children had nearly all been through usual routine of school medical inspection but, due to defects either in original vision tests, follow up work or lack of co-operation by principals and teachers due in most cases to lack of thorough understanding of importance of the work, there had been failure to get them under proper treatment.

Of those admitted to sight conservation classes with vision that could not be improved sufficiently to do normal work, thirty-eight have been improved by combined treatment and proper use of glasses to such a degree that they have been reassigned to normal classes. Thirty-four of these were treated in our clinics and four in other clinics.

There are numbers of children in the public schools with vision so poor that they should be in sight conservation classes. There should be a sight conservation class for at least every ten thousand pupils, and it is recommended that the Department of Education be so advised. The sight conservation method of teaching, combined with constant supervision by an oculist, is of utmost value in prevention of progress of myopia and the perfected method of dealing with myopic children whose myopia is of small degree, in order to prevent progress of

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the condition, should be along lines of similar work now done in public schools of London, England. It is recommended that the lighting of public schools receive much more attention than it has, as poor lighting is undoubtedly the starting point of a great deal of myopia. It is universally recognized that myopia is increasing rapidly, that it is due to eyestrain and that the effort made by the growing child to study in poor light, and often in artificial light, which is always a strain, is a most active cause of this increase. We have public schools in New York City with classrooms lighted nearly every day with gas light of very poor quality. One of our large high schools has a study room used all day by hundreds of pupils, which is lighted only by electricity from a very high ceiling. These conditions should not be tolerated by the Department of Health.

The guidance of these blind and sight conservation classes, twenty-seven in number, and increasing rapidly, is being placed more and more on the Supervising Oculist of this Bureau, including conferences with other bodies interested in this work, such as the National Committee for Prevention of Blindness, and this feature is sure to increase as the work develops. A summary of work of the clinics follows:

Total cases	11,412
Total visits	27,549
Total refractions	26,174
Total prescriptions for glasses.....	9,137

This is a slight increase over 1917, although clinics were much handicapped by loss of days through closing of schools because of lack of heat, illness of members of staff and loss of coöperation because of demands on school inspectors and nurses for other work. In the contagious eye disease service, there were 6,999 cases with 62,387 treatments. This is about 50 per cent. decrease from 1917 due principally to fact that conjunctivitis and trachoma cases have decreased to an amazing degree.

Open Air Classes.

These classes in most cases are located in public school buildings, and are supervised by this Bureau in coöperation with school authorities.

The following types are admitted to the open air classes:

Children exposed to tuberculosis at home or in whose families there have recently been deaths from this disease.

Children who have had tuberculosis which is now arrested or cured.

Children suffering from malnutrition.

Children who become tired easily or show languor or fatigue before end of the day and are unable to carry on their class work.

Children suffering from nervous diseases, except chorea.

Children who frequently are absent because of colds, bronchitis, etc.

Children suffering from cardiac diseases who are recommended by private physician as being proper cases for these classes.

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This classification provides for the tubercular, pretubercular and subnormal children who may be benefited by open air classes.

Classrooms at present are of three varieties, grouped accord to location:

In public school buildings (88 classes).

On roofs of public school buildings, or other roofs loaned to Department of Education (15 classes).

In public parks (6 classes).

The requirements that must be met for a room to be used as an open air class are: A southern or eastern exposure, size of room ample for the purpose with sufficient light and air during school hours. To insure which frequently is necessary to have the room located on an upper floor. This is not a drawback, providing the toilets are conveniently located.

Rooms located in buildings are best for our city as the expense of providing structural changes required for classes located on roofs of buildings or auditoriums and in parks is prohibitive. Results are as good and they have advantage of being in school building.

These classes have been increased from 84 to 109. Failure to further increase the number is due to lack of available rooms, as there is a continued and increasing demand for organization of new classes. There is no school of average size in the city that cannot use at least one such class and in many schools there are sufficient children of suitable type to fill two or more such classes.

The teachers, medical inspectors and nurses have definite duties and are instructed by the supervising medical inspector of open air classes how they are to be carried out. These duties are:

Teachers.—Maintain proper room conditions, attend to needs of pupils in reference to clothing, equipment, recreation, extra feeding, conduct parents' meetings, make home visits, etc. (These instructions were approved by City Superintendent of Schools. The pedagogical work is entirely under supervision of Department of Education.)

Medical Inspectors.—Assigned to definite schools. Responsible for admission and discharge of pupils of these classes. Examine pupils at definite intervals, advise what they require to improve physical condition, advise teachers and nurses as to action they should take, make home visits to absentees, etc. Act as medical advisers to teachers and nurses.

Nurses.—Assigned to definite schools. Make weekly class inspections, carry out instructions of medical inspectors, coöperate with teachers, visit homes, conduct school consultations and perform needed social service work.

The work performed in open air classes by teachers, inspectors and nurses must be recorded on special forms provided. The Department of Education publishes annually a complete report of open air class work. This report is forwarded to them by the Director of Bureau of Child Hygiene.

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The pupils in open air classes follow a definite schedule in daily routine as follows:

9:00 to 10:00 a.m.....	School work
10:00 to 10:15 a.m.....	Extra feeding
10:15 to 11:00 a.m.....	School work
11:00 to 12:00 a.m.....	Rest period
12:00 to 1:00 p.m.....	Lunch period
1:00 to 2:45 p.m.....	School work
2:45 to 3:00 p.m.....	Second extra feeding

The Board of Education limits the register of a class to twenty-five pupils belonging to any grade. The instructions are conducted in grade groups. There are also short recesses for recreation during school work periods. Home work is avoided by providing sufficient study time. Only essential subjects are taught.

The regular equipment consists of individual movable school study chairs, sleeping bags and cots. All extra clothing must be supplied by pupils as the Department of Education has not sufficient funds to supply sweaters, caps, gloves and overshoes as in previous years. The movable study chairs permit children to be arranged in any groups desired to carry on work. Cots are used as pupils rest in a horizontal position. Sleeping bags are used when children sit in study chairs or when lying on cots.

The selection of teachers for open air classes is very important and definite qualifications are demanded of them. These are good health, even temperament, capacity for doing a large amount of school work well, as a number of grades must be taught, physical ability to make home visits and a desire to study problems of the work in their classes by reading and taking an appropriate study course.

The important factors in success of this work are fresh air, light, food, correction of physical defects which retard growth and development, and proper hygienic living conditions. The teachers, inspectors and nurses are always striving to carry these out. They visit the homes to instruct parents as to home routine for their pupils. A great deal of social service work frequently must be done by teachers and nurses. This may appear foreign to the subject but it cannot be neglected in a large city. It is most difficult to overcome unsatisfactory home conditions and parents are reluctant to have them interfered with, no matter what advantages are promised through making changes requested.

Food is one of the difficult problems to handle. Extra feeding at ten o'clock was provided in all classes, except eleven, during the school year. No definite funds are available for this and each school must solve its own problem. Funds are procured from friends of the school, parents' associations, pupils, efforts

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of principals, teachers and nurses and in some cases by private societies. In Brooklyn and Queens the Tuberculosis Committees of the boroughs pay all deficits of classes in their respective boroughs. The kind of food has been standardized and all classes are providing cereals and milk, which is the best that can be supplied with limited means at hand. It is ample in food value and can be supplied at cost of two to three cents per day per child.

The regulation of diet at home is a great problem but we have agreed upon a definite plan. As nearly all these classes are in poor neighborhoods, it is impossible to get parents to provide special diet for their children. However, we have been successful in getting them to avoid giving children vicious foods and in providing for their families properly. By this plan the least interference in home is made and it rarely entails extra work for the mothers.

The rest period is given before lunch and is a marked improvement over that given after lunch, when it is expected of the children that they do their school work after rest. With this morning rest period the children never get too tired and teachers report that they do more and better school work. One of the difficulties is to establish a proper rest period for children in their homes when there is no school session. On account of this lack of rest many children lose during vacation periods. Rest before supper is urged. Classes located on upper floors have a rest period from 1:00 to 1:10 p. m. to get ready for work after climbing stairs.

Classrooms all have sufficient light and air but this is too often not the case in homes. Frequently homes are too small and conditions so bad that little can be done unless the families move. This entails increased expense, which many cannot afford. Here again the social service work of teachers and nurses plays a great part and many have been assisted in transforming conditions through their efforts.

The scholastic records are kept by teachers on forms supplied by Department of Education. The inspectors keep waiting lists of suitable children for each class and vacancies are filled from these. The nurses visit their schools daily and are available to teachers at all times. Inspectors are advised by the nurses whenever their services are required in these classes, in addition to regular visits. The supervising inspector of open air classes visits them regularly to inspect pupils and to discuss with principals, teachers, nurses and medical inspectors the proper management of each class and to explain questions that may have arisen, to correct errors in carrying on work or keeping records. He holds regular meetings with teachers, nurses and inspectors and gives courses of lectures designed to promote better understanding of the work.

The work performed by the Bureau from September 10, 1917, to June 28, 1918, a full school year, is shown in the tables that follow. They show the enormous effort this work entails to secure results recorded. This Bureau has now been in charge for one and a half school years (three school terms).

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The force of medical inspectors has frequently been below normal. We have also had to fill these vacancies with less experienced workers. Nevertheless, the work in open air classes has not been slighted.

WORK IN OPEN AIR CLASSES

	Man- hattan	Brook- lyn	Bronx	Queens	Rich- mond	Total
Schools with open air classes....	38	24	5	7	1	75
Classes.....	53	33	7	8	1	102
Pupils examined:						
Boys.....	649	413	101	71	12	1,246
Girls.....	905	585	120	132	18	1,760
Total.....	1,554	998	221	203	30	3,006
Vision:						
Defects found.....	209	137	33	36	1	416
Glasses obtained.....	161	83	32	9	1	286
Hearing:						
Defects found.....	16	19	5	7	....	47
Treated.....	8	14	5	6	....	33
Teeth:						
Defects found.....	981	685	122	120	....	1,908
Treated.....	614	265	96	44	....	1,019
Defective nasal breathing:						
Defects found.....	195	144	55	32	2	428
Operated.....	92	55	17	8	1	173
Hypertrophied tonsils:						
Defects found.....	241	156	43	57	2	499
Operated.....	114	56	16	5	....	191
Nutrition:						
Defects.....	1,428	879	163	172	34	2,676
Improved by treatment....	1,133	673	138	156	31	2,131
Cardiac disease:						
Defects.....	57	75	16	2	3	153
Treated.....	57	75	16	2	3	153
Pulmonary disease:						
Defects.....	64	21	7	1	....	93
Treated.....	58	15	5	1	....	79
Orthopedic defects:						
Defects.....	71	41	6	4	....	122
Treated.....	52	29	5	4	....	90
Nervous affections:						
Defects.....	23	16	4	2	5	50
Treated.....	16	12	4	2	4	38
Children registered.....	1,305	805	175	195	20	2,500
Average terms in class.....	1.8	2.2	2.3	2.1	3	....
Cases transferred.....	249	193	46	8	10	506
Weight:						
Children who gained.....	1,133	673	138	156	31	2,131
Children who did not gain..	256	181	21	14	3	475
Children who lost.....	29	25	4	2	60
Pretubercular children.....	327	105	29	28	2	491

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WORK OF MEDICAL INSPECTORS IN OPEN AIR CLASSES

	Inspections	Regular physical examinations	Re-examinations
Manhattan.....	511	2,782	5,843
Brooklyn.....	327	1,714	3,687
The Bronx.....	103	387	828
Queens.....	98	411	1,014
Richmond.....	27	54	109
	1,066	5,348	11,481

WORK OF NURSES IN OPEN AIR CLASSES

	Manhattan	Brooklyn	Bronx	Queens	Richmond	Total
Contagious Diseases:						
Inspections.....	22,358	15,658	3,210	2,008	240	43,474
Consultations.....	998	540	120	82	4	1,744
Instructions and treatments.....	6,828	4,876	1,608	1,144	100	14,556
Physical Defects:						
Instructions at school..	6,555	3,632	460	484	10	11,141
Cases terminated.....	454	234	101	82	24	896
Visits:						
Contagious diseases...	98	78	14	26	.....	216
Physical defects.....	2,612	1,160	296	246	26	4,260
Dispensaries.....	160	81	34	26	4	305
Lectures.....	159	132	28	16	2	337

The method of weighing children at present is inaccurate and prevents submitting proper figures. In winter months, classrooms are too cold to disrobe children and accurate weighing is impossible. Next year weighing will be done in the medical inspection room and nurses will assist teachers. Though children will not be stripped they will be weighed without out garments and shoes. They will provide figures of value. Though ratio of gain at present is not available the first of foregoing tables shows number who had positive gains.

OPEN AIR CLASS SCHOLARSHIP RECORD

	Grades Advanced			Progress as Compared with Previous Record		
	More than one grade	One grade	Less than one grade	More rapidly	At same rate	More slowly
Manhattan.....	134	1,287	133	348	1,165	41
Brooklyn.....	79	815	104	242	723	33
The Bronx.....	17	175	29	81	135	5
Queens.....	10	169	24	43	149	11
Richmond.....	30	4	26
	240	2,476	290	718	2,198	90

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During past winter the closing of many schools from lack of coal had a very bad effect upon pupils of open air classes. When schools reopened many children were found to have lost much gain in weight they had already made. In most cases they rapidly recovered their loss after their return to school.

With few exceptions, children who have progressed more slowly in open air classes are considered to be backward children, which is verified by their previous class records. So far as possible, mental defectives are not placed in these classes, as they are a great handicap to teachers, who have not time to give them required individual training.

The medical inspectors provide a waiting list for each class from cases of malnutrition they find, as well as from cases referred to them by teachers, nurses, private physicians or clinics. They make a physical examination of each child, at least at beginning and end of each school term, and as often during term as individual cases require. As soon as a child receives treatment for a physical defect, the inspector is informed by the nurse and makes a re-examination to ascertain results of treatment.

The medical inspectors make all discharges from these classes. The length of times a pupil is kept in a class is regulated by physical progress made, and ability to maintain his gain if returned to a regular class. Those pupils coming under types 1, 2 and 3, of necessity, must be kept in open air class a long time, even a number of years, in many cases.

As cases selected are always of marked type, rarely will a child be fit for transfer to a regular class in less than one full school term. No discharges are made in June, as it has been found that when children return in September from vacation, many who left in excellent physical condition are back to original, poor form. Discharges are made, therefore, in September, at opening of school. Many are made in February when midyear term commences. New admissions are made from waiting lists which show those most in need of the advantages afforded.

The procedure established, of admitting cardiac cases to open air classes only on request of a private or hospital physician, has been most successful, as number of applications received proves. This procedure also gives positive assurance that these children are receiving proper medical care as long as they remain in class. Physicians are constantly requesting that cardiac cases under their care be placed in one of these classes. The requests are always complied with, if possible. Not a single cardiac case admitted to an open air class has failed to progress satisfactorily physically.

The parents' meetings are of great value, as they keep mothers interested in the work. To spread the propaganda, all parents are permitted to attend though they have no children in classes. They learn how to keep their children strong and well.

506 children were transferred from open air classes during the school year. The nurses follow up these children to ascertain physical progress after entering regular class. They are seen at least once a month and a record of their condi-

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tion, weight and scholastic standing made. Of the 506 mentioned, 367 were followed up to close of school year, with following results:

CASES DISCHARGED FROM OPEN AIR CLASSES

Gained weight	Remained same	Lost	Scholarship improved	Same	Worse
319	43	5	70	292	5

The five who lost weight were put back to open air class again. All these children will be followed up again next year to ascertain whether they continue to hold their gain.

Children who have reaped the benefits of open air classes are so impressed with instructions and routine that they will undoubtedly continue to follow them. Each will then become a missionary and will assist others to learn to live correctly. This is very essential so long as number of open air classes is so small, and we must rely upon these children to carry to their homes, and to their friends, the lessons they have been taught.

From the observations made so far, the following results of open air class work are enumerated:

Physically subnormal children improve in mental and physical condition.

Their nutrition and weight improve.

The gain will be, in most instances, permanent.

Arrested cases of tuberculosis have no relapses.

Nervous system is restored to a normal condition.

Cardiac cases, kept under proper medical supervision, improve markedly.

Capacity for doing work is increased and brought to at least normal average.

Absence from school on account of illness is greatly reduced.

Proper diet is followed, and food properly prepared.

Good habits are established.

Hygienic rules are lived up to.

Children learn how to do right things at right time.

SPECIAL NURSING ACTIVITIES.

During 1918 innumerable activities were attempted and accomplished under most difficult and trying circumstances. With one-sixth of the force away in war service, it became necessary to appoint many temporary and often most unsatisfactory nurses. The shortage of nurses offered many alluring opportunities for other positions which were accepted by many. The remaining staff was

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constantly training new material and doing the work of two instead of one. Yet, in spite of these handicaps, much additional work was well and cheerfully done.

During week of May 20, the National Milk and Dairy Farm Association held an exhibit at Grand Central Palace, where this Bureau fitted up a booth showing a Baby Health Station. Daily clinics were held, with demonstrations, instructions and talks given to groups and individuals. Judging from crowds that attended, this was a popular booth and attracted considerable attention.

The Bureau has always given to all organizations that stand for uplift of children the best possible coöperation. The Federation for Child Study during a recent special and concentrated effort to feed children suffering from malnutrition called upon nurses in the various districts for coöperation and help. The canvassing for Children's Year was done two days a week for a long time, the nurses instructing mothers and urging them to have their children weighed and measured. Many Baby Health Stations were used as centers where doctors and nurses were on duty.

During the influenza epidemic much good work was done by the Bureau's nursing staff. Saturdays and Sundays were considered ordinary working days. Bedside nursing, although not done for several years by many nurses, had not been forgotten and was taken up with oldtime energy and interest. Every afternoon was devoted to this essential and necessary work by the Baby Health Station nurses. 4,768 patients were given bedside nursing care; 4,952 families were visited. Patients were sent to hospitals, children placed with relatives or friends during illness of parents. Suitable foods, such as broths, soups, milk, custards, etc., were supplied in generous quantities, in many instances sufficient for entire family where mother was ill and no food could be prepared at home. Bed clothing was provided, cleaners for homes employed, nurses' aids assigned, provided all calls and demands for such service were referred to the office of Superintendent of Nurses and from there turned over to proper persons in charge of these emergency supply stations.

The epidemic left a large number of dependent children, in some cases without father, mother or even relatives. These had to be taken care of and again the nurses were called upon to make a survey to determine just how many such children there were. Every death from influenza or pneumonia was investigated with following results:

Visits made	7,185
Dependents found	2,390
These were classified as	
Cared for by relatives.....	897
Orphans	175
In need of temporary care only.....	440
Father dead (mother eligible for pension).....	590
Father dead (mother ineligible for pension).....	167
Mother dead, father able to pay for children.....	121

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The orphans were later referred to Department of Public Charities and other agencies where suitable arrangements for future care were made.

Nurses for private cases were in such demand and demand was so much greater than supply, that nurses of this Bureau were called upon to assist by relieving at night and after hours. Most of this nursing was done by school nurses, who were not doing bedside nursing as were Baby Health Station nurses. A supervising nurse was one duty each night. Calls were received by her from the Commissioner's office and she in turn sent them out to nurses who had volunteered for this work. Approximately 58 cases were taken care of in this way. This does not include many cases cared for by nurses on their own responsibility. The city hospitals, in their shortage of nurses, called upon the department and the nurses from Division of Midwives and Foundlings were transferred for period of the epidemic to the Staten Island, Queensborough and Kings County hospitals.

The same demand as in years past has been made upon this office to send children to the country and the following fresh air homes have been called upon to care for those suffering from malnutrition who have been refused employment certificates for that cause:

Holiday Farm cared for 105 children.

Julia Home cared for ten girls every two weeks during summer months.

Young Men's Hebrew Association cared for all boys who were refused employment certificates.

Several friends of the Bureau contributed money for relief work, especially for milk for undernourished children. Particular credit is due members of Camp Kuwiyian who have for a number of years helped to provide extra food, clothing and outings for members of Little Mothers Leagues. At Christmas 53 tickets for dinner baskets were received from the New York American and distributed.

Special lectures of particular interest to nurses have been arranged when stress of work permitted. A course of three lectures was given by Dr. Lapowski of the Good Samaritan Hospital on minor skin diseases, with special clinics. Talks on major contagious diseases were given at Willard Parker Hospital.

EMPLOYMENT CERTIFICATES.

The Division of Employment Certificates had a year of strenuous work, considering that the greatest number of children in history of New York City were sent out to work, equipped with employment certificates. Applications for permanent certificates were received from 53,917 children and of this number 50,710 were able to meet requirements of labor law. 2,174 were refused certificates, and in remaining cases certificates were temporarily withheld because of inability to meet one or all of the strict requirements of law regarding age, education or health.

During July and August the enforcement of a new law for issuance of summer vacation certificates resulted in 5,943 children entering mercantile establishments and business offices only, for those months.

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Early in 1918 many attempts were made in the Legislature of this state to lower the standard for employment of children during the period of war. Many bills were introduced and this Bureau was called upon to revise the bills, separate good from the bad and substantiate opinions expressed in various memoranda for information of the legal division of the Department. Among these bills the following measures subsequently became laws:

Assembly Bill Introductory No. 716, to amend law in relation to employment certificates.

The Division of Employment Certificates, in course of physical examination of applicants, records the physical condition of each applicant. This requires an original and a duplicate blank, prepared in accordance with instruction from the State Industrial Commission which bureau has supervision of issuance of employment certificates. These blanks were prepared and printed at expense of the State Industrial Commission and furnished to the Department of Health. The change in the law requires cities of first and second class to furnish the physical examination blanks for this examination.

Cowee bill, which amends the labor law in relation to summer vacation permits. This amendment is part of chapter 36, laws of 1909, and is amended by inserting new section to be known as section 165a, provisions of which are as follows:

1. During July and August, children between fourteen and sixteen years of age may be employed in or in connection with any mercantile establishment or business office, provided they obtain a summer vacation permit.
2. This permit shall differ in size and color from permanent employment certificate and shall bear the following words across the face, in red ink: "Summer vacation permit good only from July 1 until August 31 inclusive."
3. Applicants must submit following documents:
 - a. A statement from school certifying that he has attended one hundred and thirty days between 13th and 14th birthday or during the twelve months next preceding application for a summer vacation permit.
 - b. Evidence of age in same order as prescribed for the permanent certificate.
 - c. Proof of employment from prospective employer setting forth character of work to be required of the child.
 - d. Applicant must submit to a physical examination by a physician of the Department of Health similar to that prescribed for permanent certificate.
 - e. In event that the child changes positions he must return to the Department of Health for a second permit and present proof of employment from his prospective employer for subsequent position and be re-examined physically.
- 4a. The Department of Health is required to forward the certificate by mail to employer.

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- 4b. When a summer vacation permit is required, the Department of Health shall file said permit and preserve it one year.
5. Employer is required to return permit within three days after its receipt in case child is not employed; within three days after termination of employment if occurring within July or August, and within three days after August 31, in case child is employed until termination of permit.

Penalties.

Any person, firm or corporation, who fails to return the summer vacation permit as required by this section or who employs a child under sixteen years of age upon a summer permit except during July and August shall be guilty of a misdemeanor.

Under a new procedure adopted by the Division of Employment certificates a child appearing at office of the Department and presenting a baptismal certificate or passport is no longer required to wait until a birth certificate has been obtained from place of birth or a record stating that birth has not been recorded. The baptismal certificate or passport is considered equivalent evidence of age. The question, however, of waiving the birth certificate, passport or baptismal certificate and substituting documentary evidence of age has also been a subject of discussion and an opinion of the Corporation Counsel justifies action of this division in refusing to accept a court record in lieu of a birth certificate:

There has been considerable controversy during the year with reference to the school record and since the Department is without power to remedy the condition, the fact remains that requirement of 130 days' attendance between the 13th and 14th birthday or the year preceding application for a school record means a great hardship to the child who graduates at thirteen and through improper instructions at school or ignorance of the law remains at home or is illegally employed until such time as the attendance officer reaches the case, which is usually too late for the child to return to school and make up the missing days during the current year. In these cases it is frequently necessary for the child to return to school for 130 days' period. While not in accord with the opinion of many parents that a public school education is sufficient, we must give the fact some consideration when the parent states that he is unable to send the child to high school on account of additional expense of lunch and carfare. Until more junior high schools are provided throughout the city it will be exceedingly hard to make the parent see this point from any angle except that of economic necessity, therefore, in many instances when these children are returned to school they realize that they are only making up time, will never finish the full high school course of three or four years and are reluctant to give proper attention to studies. Whereas, if returned to a junior high school where the course is one year, at the end of the 130 days they would have almost completed the course and many parents would stretch a point and permit the child to remain until end of the term. The only alternative is to eliminate the pro-

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vision of law requiring an attendance of 130 days during the periods specified for children who have graduated and its retention in the law for the under-graduate. During 1918, it was necessary to refuse 134 cases for insufficient tuition, which is an improvement over 1917 when 214 cases were rejected for this cause.

Physical Incapacity.

Under the provisions of law which required a physical examination of each applicant 51,695 children were examined; 26,636 of these were found without physical defects. It was also necessary to refuse 1,190 children, who were unable to meet the standard set by the Department in connection with the physical examination, excluding children suffering with minor physical defects which in most cases would respond to treatment. The number of cases refused for this reason were:

Malnutrition	254
Cardiac	399
Pulmonary	20
Miscellaneous	537
Total	1,210

The following is a comparative table of physical defects for 1917 and 1918:

	1918	1917
Children examined.....	51,695	40,609
Children with defects, teeth only.....	11,117	8,751
Children with associated defects.....	13,241	13,701
Defective vision.....	7,434	6,727
Acute eye diseases.....	351	612
Defective hearing.....	152	189
Cardiac.....	412	335
Pulmonary.....	44	63
Mouth breathing.....	428	719
Hypertrophied tonsils.....	3,476	3,474
Palate.....	82	298
Glands.....	2,181	3,683
Defective teeth.....	15,458	14,909
Anaemia.....	237	441
Malnutrition.....	278	325
Hernia.....	41	36
Nervous diseases.....	77	151
Skin.....	81	65
Goitre.....	2,116	325
Orthopedic.....	276	275
Pediculosis.....	183	166
Defective speech.....	3	4

On January 1, 1918, the New York Child Labor Committee with consent of the Director of the Bureau detailed a special agent to the Manhattan office of the Division of Employment Certificates for purpose of assisting children whose employment certificates the Department of Health found it necessary to

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withhold for a temporary period for reason that physical examination showed the child to be suffering with a remedial minor physical defect such as defective teeth, defective vision, hypertrophied tonsils, all of which if uncorrected might result in serious impairment of the child at some subsequent time. The investigation covered 266 cases and with exception of ten cases, a period of six weeks had elapsed between date of application and the home visit. This time is usually allowed by the Department for the child to get under treatment before the case is formally refused and referred to Bureau of Attendance. During December this procedure has been changed and cases temporarily withheld are reported daily to the Bureau of Attendance to assist it in checking truancy cases.

According to usual procedure, when these cases are originally withheld the school nurse is responsible for correction of the defect. The many duties assigned to the nurse and the fact that she can use only moral suasion to obtain desired results make it difficult for her to give sufficient time to the work to successfully terminate each case.

Disregarding the issuance of certificate and considering only improvement in physical condition, the work of this representative in coöperation with the Department was very satisfactory. The following summary shows work accomplished:

Home visits	266
Children receiving certificates.....	41
Children returned to school (verified by home visit).....	85
Children granted average certificates.....	5
Unable to locate.....	38
Pending cases	87

Many of these children showed allied defects.

A medical inspector of the Division who has always shown marked interest in examining children for employment certificates made a tabulation of cases examined by her in which 809 children had defective vision corrected by obtaining proper glasses; the mouths of 578 children who upon original examination showed defective teeth, were placed in sanitary condition with all defects removed, and 115 cases of hypertrophied or diseased tonsils removed. In all these cases the actual work was performed and mere presentation of a letter from a physician showing treatment did not place the case within this study.

During the year a new physical examination blank was prepared by the State Industrial Commission and many suggestions made by inspectors of this division were incorporated. The copy of new blank is attached hereto.

During the year an inspector of the Division of Employment Certificates has been assigned to Municipal Term Court for purpose of making a physical examination of children brought before the court for violation of compulsory education law and this physical examination is an aid to the judge in determining age of the child. This service has resulted in close coöperation between the

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court and the Department. In cases of children refused employment certificates on account of physical incapacity the ruling of the department has generally been upheld by the court. At the close of 1918, a letter of commendation for good work performed by inspectors was received by the Director of the Bureau from Judge Appleton, who was assigned to hear these cases.

The war has increased work of the Division in number of searches made for evidence of age of registrants at local exemption boards. Many young men possessing no documentary evidence of age were advised as to best method to secure proof of age for the boards. Certifications of age based upon evidence of age filed by applicants for employment certificates many years ago were requested from various sources and 896 such records were issued. Certifications were also issued to those who had difficulty in proving their age or their alienage in case of draft. It is unfortunate that we have no record of these applicants who requested return of evidence of age, but the above 896 certifications does not include original birth records that were unearthed and returned to their owners.

The records of the Division of Employment Certificates were also requested by the District Attorney in a case brought by the father of an applicant for an employment certificate against a person who made an affidavit that he was step-father of the child, whereas he was only a boarder in the home. This shows necessity for extreme care in permitting a guardian to sign an application when either of parents are living and it is only after the clerk has been fully assured that it would be impossible for parent to appear that an authorization for a guardian to act is permitted to be executed by the parent.

For many years children who were unable to meet qualifications for a permanent certificate, which each year becomes more stringent and at present requires graduation for the fourteen-year old child and completion of first six years of elementary school for the child between fifteen and sixteen years, were not permitted to work under the law, with result that they roamed the streets during vacation period or engaged in work contrary to provisions of the labor law. On May 13, Governor Whitman signed the Cowee bill, which was presented to him after much controversy from various organizations interested in child labor, and in so doing he legalized vacation work for children between fourteen and sixteen years of age, under specific qualifications. Some were greatly disappointed because work in connection with factories was barred. Many found work of a purely clerical nature but were refused certificates under a ruling of the attorney-general, rendered at request of the State Industrial Commission, that clerical work in a factory should be construed as factory work.

During July and August, 6,184 applications were received, of which 5,943 were granted. This does not include applications made by children who could not qualify because of lack of age, school attendance or proof of employment. 87 applicants were refused certificates on account of physical incapacity.

Many manufacturers demurred at the seeming discrimination against their industries. Since no discretionary power was vested with this Department and

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the State Industrial Commission has supervision of issuance of certificates, its classification of a firm as a factory was considered final. In a few cases certificates were issued to factories in error. Some were returned by the firm upon receipt of the permit which is good for work in mercantile establishments and business offices only, others were collected and returned by inspectors of the State Industrial Commission, who in each case requested this Department to furnish them with information contained on proof of employment record which prospective employer signed before certificate was issued, and if the employer indicated in any way that his business was other than a factory or that no goods were manufactured, he was liable to prosecution under provisions of the labor law. A considerable number of certificates were returned by employers unwilling to employ children for vacation period stating that it would take that length of time for the child to become familiar with duties, others stated that children could not qualify for various reasons, some children failed to appear at place of prospective employment.

For the period July 6 to July 13, applications were considered from 4,890 employers and 4,530 summer vacation permits were granted, and for the period June 17 to July 13, 12,060 applications were received from parents of which 11,258 were granted permanent certificates, meaning that certificate remains in force until the child reaches its sixteenth birthday, aggregating some definite action on 16,950 applications and the granting of 15,788 certificates for employment during the four weeks (vacation certificates were not issued prior to July 1). This does not include applicants who were interviewed and could not qualify.

Realizing the magnitude of the approaching task, the director of the Bureau appointed as a committee the chiefs of the Divisions of School Medical Inspection, Baby Welfare and Employment Certificates to formulate a plan of procedure for this work.

After perusing the report of committee, the director called a meeting of the following persons interested in the work: assistant director, Bureau of Attendance of Department of Education, secretary of New York Child Labor Committee, director of Bureau of Vital Statistics, chiefs of Divisions of School Medical Inspection and Employment Certificates. At this meeting the director of the Bureau of Child Hygiene presented a plan previously outlined by the director and her staff; a synopsis of the plan follows:

The certificates were issued at offices of the supervisors of Bureau of Attendance located in various schools and in main office of that Bureau, 154 East 68th street, Manhattan, making fifteen issuing points. A nurse and medical inspector were originally assigned to each office, but on the first day it was found necessary to augment this force in every office, several offices requiring as many as five or six nurses and twice the number of physicians to perform that part of work required by labor law to be performed by Department of Health. Previous arrangements had been made by the Bureau of Attendance in coöperation with

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school principals to prepare school records for all children who would become eligible for employment certificates during vacation, and to prepare statements of attendance for all children between fourteen and sixteen who were not eligible for permanent certificate but entitled to summer vacation permit. These records were forwarded to the office of supervisors of Bureau of Attendance located in each school district and from there distributed to the child by a representative of that Bureau. Reports from the various offices showed that the assistance rendered to the Department of Health by this representative, without exception, was responsible for the high type of work and absence of complaints at these places. A few principals failed to comply with request of the director of Bureau of Attendance, and in those instances children were penalized for neglect of their principals because an employment certificate cannot be issued until school record of child is presented, examined and filed.

The nurse and physician originally assigned to each issuing point were instructed by the chief of Division of Employment Certificates both by a talk and through observation of work at borough office of the Department and in addition each office received a set of typewritten instructions of the procedure and use of various forms. However, this instruction had little effect when the force was augmented on first day by five or six additional nurses and an equal number of physicians who knew absolutely nothing about the work nor the law under which certificates were issued. This was unavoidable as it was impossible for the Department to estimate the number of persons who would apply. The task of employes at these offices was not simple and much initiative was necessarily exercised, as the average employe assigned to Division of Employment Certificates requires at least two months' instruction before the many details of work are thoroughly grasped, and it is reasonable to assume that many details of work explained to the few fortunate enough to have been instructed, had little, if any, significance until the problem appeared and the nurse was thrown on her own resources for a solution.

All new forms used in issuance of summer vacation permits were approved by the State Industrial Commission in accordance with law.

It is rare for a child to dislike the idea of working during vacation, but a letter was received from a little chap who stated that he was thirteen years and five months of age and was employed by a certain firm, and that he was working because his mother compelled him to do so. This was a most unusual complaint and was referred to the Department of Labor for action.

While there is no authentic proof, it is probably true that the Division of Employment Certificates coöperates with as many, if not more, departments, organization and agencies than any other Division of the Department. To name a few, we have the Department of Labor of State Industrial Commission, supervising the work; the Department of Education, through its Bureau of Attendance. At present a representative of that Bureau is stationed in the Manhattan and Brooklyn offices for purpose of referring children to continua-

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tion classes maintained by Department of Education; the City Superintendent and District Superintendents of Schools, principals and teachers, all social workers of charitable and relief organizations, all child welfare institutions, the Catholic School Board, the various Hebrew schools, aside from the courts and recent connections with local draft boards, the United States Employment Service, to whom a list of children receiving certificates is furnished so that they may be followed up and placed in positions; the State Employment Bureau, to which the Chief of the Division was appointed as a member of Advisory Committee, and through which committee arrangements were made with the Bureau of Preventable Diseases for establishment of an occupational clinic in office of the Employment Bureau so that children applying for positions could be examined before placement. This Bureau also receives a list of children receiving employment certificates in Brooklyn in order that same work performed by United States Employment Bureau in Manhattan may be performed by the Brooklyn association. The Home Service Section of American Red Cross frequently uses this Division in investigation of its cases. During the year thirty-six cases were referred to New York Child Labor Committee for scholarships, six of which were found to warrant assistance by that Committee upon home investigation.

Various sessions of following conferences were attended by the Chief of Division of Employment Certificates and valuable information gained in connection with work of the Division: The Ninth Annual New York City Conference of Charities and Correction, Fourteenth National Conference on Child Labor, Hearings before Committee on General Welfare of the Board of Aldermen with reference to Juvenile Welfare in New York City. A curfew law prohibiting children under sixteen years of age to be on the street unaccompanied by an older person after 10 p. m. in summer and 9 p. m. in winter was considered. The ordinance was passed by the Board of Aldermen, but was vetoed by the Mayor.

Toward end of the year a "Back to School Drive" was launched by the Conservation Section of Children's Year Committee under direction of the Mayor's Committee of Women on National Defense, of which the Director is Chairman of Children's Year Committee and Miss Jeanie V. Minor, Chairman of the subcommittee on "Back to School Drive." The purpose of the committee is to return to school as many children as possible before the first of April, 1919, and for purpose of investigating the number of children who fail to return to school after temporary employment, the records of Division of Employment certificates have been used as follows:

To investigate, through visits to home and school, all children who received summer vacation permits and whose employers failed to return them to the Department after September 1, 1918. To ascertain the number who would probably have returned to school if they had not gone to work during the summer and the number who retained their summer positions after vacation.

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By this investigation it is hoped to prove that the number of inspectors, both in Bureau of Attendance and State Industrial Commission, is inadequate, that public schools need a change in curriculum, and that if scholarship were granted by the city many children would return to school who otherwise are forced through economic necessity to assist in swelling the family income, and finally, whether or not, the present vacation permit law should be repealed.

The Division of Employment Certificates is aiding in this investigation through use of its records and by actual investigation of some cases.

CONTAGIOUS EYE AND SKIN DISEASES IN SCHOOL CHILDREN (1918)

	Pedi- culosis	Troch- oma	Con- junct- ivitis	Ring- worm	Scabies	Im- petigo	Favus	Folli- cular Con- junct- ivitis	Mis- cella- neous	Total
Manhattan:										
Cases found in school.....	86,817	1,117	4,246	1,962	771	4,166	209	55	.....	99,343
Cases excluded from school.....	3,993	42	1,079	55	67	64	20	22	1	5,343
Treatments and instructions.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	976,729
The Bronx:										
Cases found in school.....	26,647	287	1,441	321	204	735	33	102	.....	29,770
Cases excluded from school.....	2,203	10	275	6	14	19	2	.....	.....	2,529
Treatments and instructions.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	230,314
Brooklyn:										
Cases found in school.....	81,854	389	4,041	943	591	4,045	81	46	9	91,999
Cases excluded from school.....	2,063	29	350	41	63	95	10	22	.....	2,673
Treatments and instructions.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	924,222
Queens:										
Cases found in school.....	11,734	236	3,421	190	184	1,697	64	642	33	13,201
Cases excluded from school.....	199	1	28	4	8	6	.....	1	.....	247
Treatments and instructions.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	162,786
Richmond:										
Cases found in school.....	2,939	23	548	58	45	604	2	19	15	4,253
Cases excluded from school.....	77	.....	36	6	7	6	1	.....	.....	133
Treatments and instructions.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	33,151
City:										
Cases found in school.....	209,991	2,052	13,697	3,474	1,795	11,247	389	864	57	243,566
Cases excluded from school.....	8,535	82	1,768	112	159	190	33	45	1	10,925
Treatments and instructions.....	2,327,202

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GENERAL CONTAGIOUS DISEASES FOUND IN SCHOOL AND EXCLUDED (1918)

	Man- hattan	Bronx	Brook- lyn	Queens	Rich- mond	City
Diphtheria.....	0	2	0	1	8	11
Scarlet Fever.....	25	11	14	5	1	56
Measles.....	114	26	59	36	39	274
German Measles.....	90	3	53	11	4	161
Chicken-Pox.....	222	58	176	9	7	472
Whooping Cough.....	84	14	81	19	16	214
Mumps.....	275	85	200	15	14	589
Influenza.....	27	0	40	0	0	67
Total.....	837	199	625	96	89	1,844

GENERAL CONTAGIOUS DISEASES FOUND AT HOME ON ABSENTEE VISITS (1918)

	Manhattan	Bronx	Brooklyn	Queens	Richmond	City
Scarlet Fever.....	5	2	3	0	0	10
Measles.....	47	11	46	0	0	104
German Measles.....	7	0	2	0	0	9
Chicken-pox.....	25	16	19	0	0	60
Whooping Cough.....	80	13	24	0	9	126
Mumps.....	15	16	27	0	1	59
Total.....	179	58	121	0	10	368

PHYSICAL EXAMINATIONS OF SCHOOL CHILDREN NON-CONTAGIOUS PHYSICAL DEFECTS FOUND AND TREATED, 1918 EXAMINATIONS MADE

	Man- hattan	Bronx	Brooklyn	Queens	Rich- mond	City
Physical examinations made.....	91,355	31,699	79,460	24,757	4,064	247,735
Found needing treatment.....	80,657	25,260	63,500	18,000	3,481	190,898
With other defects than of teeth only	37,689	12,340	26,748	8,239	1,395	86,311
With defects of teeth as only defect.	42,968	12,920	36,752	9,761	2,186	104,587
Percentage examined needing treat- ment.....	88.3	79.7	84.9	72.7	85.6	77.0

DEFECTS FOUND

	Man- hattan	Bronx	Brook- lyn	Queens	Rich- mond	City
Defective Vision.....	10,155	2,856	8,086	2,038	227	23,362
Defective hearing.....	316	270	460	144	24	1,214
Defective nasal breathing.....	10,443	4,502	7,603	2,318	302	25,168
Hypertrophied tonsils.....	14,797	5,228	9,428	3,234	788	33,475
Pulmonary disease.....	350	132	169	90	1	742
Cardiac disease.....	1,447	581	1,580	335	36	3,979
Nervous affections.....	549	247	552	141	15	1,504
Orthopedic defect.....	767	196	623	386	17	1,989
Defective teeth.....	66,429	21,785	54,758	16,104	2,610	161,686
Number reported treated.....	37,597	12,954	30,987	12,075	528	94,141

BUREAU OF CHILD HYGIENE

TREATMENT OBTAINED (1918)

BOROUGH.	Vision.		Hearing.	Nasal Breathing.		Hypertrophic Tonsils.		Pulmonary.	Cardiac.	Nervous.	Orthopedic.	Malnutrition.	Teeth.	
	Classes.	Medical.	Treatment.	Operative.	Medical.	Operative.	Medical.	Treatment.	Treatment.	Treatment.	Treatment.	Medical.	Improved.	Unimproved.
Manhattan.....	5,572	1,033	218	2,651	2,202	3,405	2,617	233	766	324	384	6,066	9,694	12,374
Bronx.....	1,505	322	156	961	615	1,155	705	107	199	114	61	1,432	4,690	3,440
Brooklyn.....	3,938	973	263	1,558	1,921	1,789	2,120	109	674	245	238	2,950	10,727	8,194
Queens.....	985	279	105	349	1,008	416	1,543	71	265	73	75	1,985	4,596	1,016
Richmond.....	40	2	7	24	49	45	105	1	21	9	11	70	132	125
City.....	12,040	2,609	750	5,543	5,855	6,809	7,090	521	1,925	765	769	18,028	29,839	26,149

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DEFECTS FOUND UPON PHYSICAL EXAMINATIONS OF APPLICANTS FOR EMPLOYMENT CERTIFICATES

	Man- hattan	Bronx	Brooklyn	Rich- mond	Queens	City
Number of children examined..	18,933	6,702	19,987	1,007	4,866	51,495
Number of children defective teeth only.....	3,162	843	5,905	103	1,104	11,117
Number of children assoc. defects.....	5,634	2,450	4,205	43	909	13,241
Number of children no defects..	4,490	3,814	9,880	858	2,635	26,636
Defective vision.....	3,476	1,515	1,828	28	587	7,434
Acute eye diseases.....	12	97	239	....	3	351
Defective hearing.....	78	12	45	....	17	152
Defective teeth.....	4,860	1,455	7,719	77	1,347	15,458
Cardiac.....	200	53	128	....	31	412
Pulmonary.....	28	5	3	....	8	44
Mouth breathing.....	168	63	167	....	30	428
Hyp. tonsils.....	1,490	448	1,341	1	196	3,476
Palate.....	4	19	53	....	6	82
Glands.....	999	698	456	....	78	2,181
Anaemia.....	51	53	109	....	24	237
Malnutrition.....	184	17	35	....	42	278
Hernia.....	20	4	11	....	6	41
Nervous diseases.....	44	20	7	....	6	77
Skin.....	15	31	18	....	17	81
Goitre.....	110	8	79	....	19	216
Orthopedic.....	178	24	50	....	24	276
Pediculosis.....	72	47	46	....	18	183
Speech.....	....	....	3	....	....	3

STATISTICAL REPORT OF WORK OF ISSUING EMPLOYMENT CERTIFICATES

	Man- hattan	Bronx	Brook- lyn	Queens	Rich- mond	City
New Application Received.....	20,516	6,894	19,874	4,724	991	52,999
Refusals Granted.....	264	13	154	173	....	604
Certificates Granted.....	19,003	6,696	19,585	4,469	957	50,710
Certificates Refused.....	1,147	245	382	382	18	2,174
Duplicates.....	542	162	604	91	9	1,408
Certificates.....	393	64	289	81	69	896
Interviews.....	13,997	8,882	10,034	3,037	521	36,472
Ins. Tuition.....	25	....	93	21	....	139
Ins. Education.....	1	....	15	2	1	18
Under Age.....	1	6	59	14	....	48
Over Age.....	499	133	188	52	16	759
Physical Incapacity						
Malnutrition.....	177	....	....	....	....	....
Cardiac.....	196	4	15	58	....	254
Pulmonary.....	2	45	124	33	1	399
Miscellaneous.....	247	1	13	4	....	20
Total.....	622	56	36	198	....	517
Total Certificates refund....	1,147	106	188	293	1	1,210
Certificates Expired.....	17,712	245	382	382	16	2,174
Certificates in Force at End of Quarter.....	24,578	4,532	18,240	4,060	367	44,911
		8,771	29,503	4,361	1,323	68,536

BUREAU OF CHILD HYGIENE

WORK PERFORMED IN BABY HEALTH STATIONS (1918)

	City of New York		
	Babies	Others	Total
Cases Brought Forward.....	18,051	3,952	22,003
Re-admitted.....	4,164	370	4,534
From Hospital or Dispensary.....	302	57	359
From Other Organization.....	437	290	727
From Other Dept. of Health Stations.....	826	129	955
From Private Practitioner.....	354	404	758
By Canvass.....	27,044	2,339	29,383
Total.....	33,127	3,589	36,716
Total New Cases.....			28,137
Removed.....	10,848	1,166	12,014
Refused to attend.....	14,910	1,489	16,399
Died.....	379	1	380
Over Age.....	3,992	75	4,067
Transferred to Hospital or Dispensary.....	155	18	173
Transferred to Other Organization.....	152	116	268
Transferred to Other Dept. of Health Stations.....	732	62	794
Transferred to Private Practitioner.....	1,537	30	1,567
Total.....	32,705	2,957	35,662
Cases Pending.....	18,473	4,584	23,057
Babies Under 1 year.....			26,363
Babies Between 1 and 2 years.....			1,774
Babies Active.....			16,028
Babies Inactive.....			2,445
Total.....			18,473
Attendance at Station:			
Visits of Mothers.....		560,967	
Visits of Well Babies.....		492,007	
Visits of Sick Babies.....		16,335	
Total Visits of Babies.....		508,342	
Examinations of Well Babies.....		190,650	
Treatments Given to Sick Babies.....		8,976	
Educational:			
Instructions Given to Mothers Individually by Nurse.....		562,789	
Instructions Given to Mothers Individually by Physicians.....		203,067	
Total.....		765,856	
Feeding:			
Quarts of Milk Dispensed to Babies.....		3,798,187	
Quarts of Milk Dispensed to Mothers.....		332,287	
Quarts of Milk Dispensed to Others.....		1,671,921	
Quarts of Milk Dispensed for Demonstration.....		13,030	
Total.....		5,815,425	
Relief:			
Requests for Relief.....		877	
Granted: Entire Relief.....		14,899	
Partial Relief.....		385	
Refused.....		55	
Discontinued.....		219	

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Home Visits:	
Visits to Well Babies by Nurse.....	63,759
Visits to Sick Babies by Nurse.....	13,575
Visits to Babies Not Found by Nurse.....	11,217
Visits of Co-operation by Nurse.....	5,669
Visits of Canvass by Nurse.....	11,524
Visits to Children Pre-School Age.....	1,871
Total.....	107,615
Visits to Babies by Nurses' Assistant.....	64,778
Visits to Others by Nurses' Assistant.....	2,531
Visits to Babies Not Found by Nurses' Assistant..	10,631
Total Visits by Nurse.....	77,950
Canvass.....	10,945
Families Interviewed by Nurses' Assistant.....	24,703
Babies Found by Nurses' Assistant.....	12,954
Visits to Sick Babies by Physician.....	61
Deaths Investigated:	
Deaths of Babies in Attendance Milk Station In- vestigated.....	379
Special Work:	
Vaccinations—Primary.....	2,187
Vaccinations, Re.....	41
Vaccination Certificates Issued.....	2,553
Children Pre-School Age Examined.....	1,838

TABLE I

	1914	1915	1916	1917	1918
Mothers supervised.....	1,622	2,482	3,002	2,696	2,634
Mothers delivered.....	898	1,442	1,841	1,584	924
Percentage of mothers delivered.....	55.3	58.9	61.4	58.75	35.1
Mothers died.....	2	0	2	4	6
Nurses.....	7	7	8	7	7
Average mothers supervised by each nurse.....	231	354	375	385	376

TABLE II

	1914		1915		1916		1917		1918	
	Num- ber	Per Cent.	Num- ber	Per Cent.	Num- ber	Per Cent.	Num- ber	Per Cent.	Num- ber	Per Cent.
Total mothers deliver- ed.....	898	100.0	1,442	100.0	1,841	100.0	1,584	100.0	924	100.0
By Midwives.....	574	64.0	892	61.9	1,035	56.2	843	53.21	453	48.9
By Physicians:										
At home.....	243	27.0	431	29.8	405	22.0	554	34.97	330	35.7
In hospitals.....	76	8.5	106	7.4	387	21.0	166	10.47	139	15.0
Unattended.....	5	.5	13	.9	14	.8	21	1.32	8	0.8

BUREAU OF CHILD HYGIENE

TABLE III

	1914			1915			1916			1917			1918		
	Number	Rate per 1,000 children born.	City rate per 1,000 children born.	Number	Rate per 1,000 children born.	City rate per 1,000 children born.	Number	Rate per 1,000 children born.	City rate per 1,000 children born.	Number	Rate per 1,000 children born.	City rate per 1,000 children born.	Number	Rate per 1,000 children born.	City rate per 1,000 children born.
Children born, including															
twins.....	900	965.6	955.1	1,453	953.2	956.6	1,853	942.8	956.6	1,593	941.1	958.5	926	952.4	953.1
Living children.....	869			1,385			1,746			1,501			883		
(of which were prema- tures).....	10	11.1		14	9.6		15	8.1		20	12.5		12	12.9	
Still births (all periods of Gestation).....	31	34.4	44.9	68	46.8	43.3	106	57.2	43.4	92	57.8	41.4	44	47.5	46.9

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TABLE IV

	1914	1915	1916	1917	1918
Mothers delivered.....	898	1,442	1,841	1,584	924
Under observation:					
Eight months.....	19	54	95	61	54
Per cent.....	(2)	(4)	(5)	(3.85)	(5.8)
Seven months.....	46	100	170	124	63
Per cent.....	(5)	(7)	(9)	(7.82)	(6.8)
Six months.....	74	111	194	156	109
Per cent.....	(8)	(8)	(11)	(9.84)	(11.7)
Five months.....	94	130	224	188	94
Per cent.....	(10)	(9)	(12)	(11.86)	(10.2)
Four months.....	111	200	259	219	135
Per cent.....	(12)	(14)	(14)	(13.86)	(14.6)
Three months.....	136	231	266	242	165
Per cent.....	(15)	(16)	(14)	(15.27)	(17.8)
Two months.....	194	265	304	242	144
Per cent.....	(21)	(18)	(17)	(15.27)	(15.6)
One month.....	189	309	272	280	129
Per cent.....	(21)	(21)	(15)	(17.66)	(13.9)
Indefinitely stated.....	35	42	87	72	31
	(3)	(3)	(3)	(4.54)	(3.4)

TABLE V

	1914	1915	1916	1917	1918
Living infants.....	869	1,385	1,746	1,501	882
Deaths during first month.....	17	37	24	22	13
Rate per 1,000 living births.....	19.5	26.0	13.7	14.6	14.7
City rate per 1,000 living births.....	36.6	35.9	36.7	35.3	37.0

TABLE VI

	1914		1915		1916		1917		1918	
	Num-ber	Per Cent.	Num-ber	Per Cent.	Num-ber	Per Cent.	Num-ber	Per Cent.	Num-ber	Per Cent.
Infants living at end of first month.....	852	100.0	1,348	100.0	1,722	100.0	1,479	100.0	869	100.0
Infants entirely breast-fed living at end of first month.....	797	93.5	1,275	94.5	1,622	94.2	1,395	94.3	810	93.3
Infants mixed-fed (breast and bottle) living at end of first month.....	46	5.4	56	4.1	72	4.2	60	4.0	52	5.8
Infants entirely artificially fed living at end of first month.....	9	1.1	17.0	1.4	28	1.6	24	1.6	7	.8

BUREAU OF HOSPITALS

In all, 16,435 cases of disease were treated in hospitals of the Department. Of these 7,714 were in Willard Parker Hospital and Reception Hospital, 2,514 in Riverside Hospital, 4,365 in Kingston Avenue Hospital, 559 in Queensboro Hospital, and 1,283 in Municipal Sanatorium for Tuberculosis, at Otisville; representing a total of 496,854 patients' days as follows: 128,052, Willard Parker Hospital; 104,104, Riverside Hospital; 72,261, Kingston Avenue Hospital; 11,683, Queensboro Hospital; and 180,754, Municipal Sanatorium.

Venereal Disease Service.

The medical work of the Bureau has been increased by organization of the venereal disease service at Riverside Hospital, the result of the Whitney Law, although the law itself has nothing to do with admission and detention of these cases. Under its provisions, prostitutes convicted in courts must submit to a physical examination which, when showing that the person is suffering from a venereal disease, may be used by the Department together with other necessary evidence showing patient to be a menace to lives and health of the community. and for which reason, such patient is taken to Riverside Hospital and detained until all open lesions of disease have been arrested or cured and case can be discharged. The requirements necessary to discharge are as follows: six injections of salvarsan and 11 injections of mercury salicylate for syphilis. Most gonorrheal cases admitted are of a subacute or chronic type and are very resistant to treatment. The requirements necessary to discharge such are: the absence of gonococci in vaginal secretion from around the cervix uteri, the ducts of glands of Bartholin and the mouth of urethra, two sets of smears to be made, one being taken immediately after cessation of menstruation. The establishment of the venereal disease service was attended with many difficulties, inadequate ward service, lack of police protection to quell disorderly conduct on the part of patients, limited medical attendants on account of war, lack of nurses and ward helpers, partly on account of war, but more because nurses and helpers decline to work amongst such people and in such a service. The first two or three months were very discouraging, but after right kind of police officers were furnished and a routine procedure in disorderly conduct was adopted, which resulted in conviction with adequate prison sentences, the service greatly improved and of 358 cases treated since beginning of the year 172 have been discharged, no longer a menace to the community. Two features of this venereal service do not come under strictly Health Department work which should receive consideration and means be provided to prevent them in future. These patients when being discharged from hospital are usually without money and sent directly back to former environment and associates. Such a condition means that a case cured one day may become re-infected the next day and represent as much menace as on day of original admission. Furthermore no definite systematic, adequate means are pro-

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vided for the discharged patient obtaining a position where she may lead an honest and orderly life. The other consideration which is far more important is that these individuals, when receiving sentence for disorderly conduct, are not considered at all in their relation to public health laws, but only as disorderly persons and the sentence imposed by the judge is entirely inadequate to needs of the case; in fact, such cases should not be committed to the ordinary city prison or workhouse, but should be paroled in custody of a probation officer to be detained in a properly equipped hospital for treatment and cure of the disease and when discharged cured they should be sent to some convalescent home out of the environment from which they came and which gave rise to the condition which brought about their disease and their conviction. Until such adequate legislation is enacted very little except the psychological result brought about by fear of conviction in this class of cases can be expected.

Drug Addicts.

During December a number of conferences were held as to advisability of this Bureau providing beds and treatment for drug addict cases; as a result provision was made to take a limited number at Riverside Hospital.

Army and Navy Patients.

During first half of the year several hundred meningitis carriers were admitted from the military camps and from the Naval Hospital. These cases were very difficult to handle from both medical and administrative standpoints. Various methods, including use of Dakin's solution under direction of Major Dunham, were tried. The patients did not respond rapidly to the treatment, and a good many were held for several months, and finally disposed of by being transferred to U. S. Government Hospital No. 1, and the Rockefeller Institute. These patients not being acutely ill and impatient to get to active duty were difficult to control.

Influenza Epidemic.

The two medical features of greatest importance were the large number of influenza cases and the comparatively small number of all other cases of communicable infectious diseases. 3,420 influenza cases were admitted with a death rate of 11.6, being among the low death rates recorded for so large a number of influenza cases treated during the epidemic. The good results obtained in treatment of influenza are attributed to the fact that the service was under the direction of trained medical men of long experience in care and treatment of acute infectious diseases, and that the routine established for conduct of physicians and nurses, and attendants for other contagious diseases when applied to influenza, gave favorable results because errors in judgment and treatment were less frequent at beginning of the epidemic than they would have been without such training and experience.

BUREAU OF HOSPITALS

Municipal Sanatorium Admission Office.

The patients admitted to the Municipal Sanatorium for Tuberculosis at Otisville have not been of the type and kind formerly considered eligible, apparently two conditions have been responsible. The shortage of labor and prevailing high rates paid made it possible for every individual, whether healthy or diseased, to obtain a job. As a result, incipient cases of tuberculosis have been able to receive good wages, employ medical attention, buy good food and generally take care of themselves in their homes, and have not applied for sanatorium treatment. Necessarily, the Sanatorium has had to extend its eligibility for admission to second stage and advancing cases. As a result of adoption of this plan, a good many cases have been sent to the Sanatorium who were unfit patients and had to return to their homes or institutions within a very few days after admission. Such procedure is both expensive and detrimental to the sanatorium and to prevent admission of improper patients an admitting office has been established at Prince and Wooster Streets where applicants are examined by the Physician-in-Charge of the Sanatorium before being sent to Otisville. More desirable patients have been admitted since opening this office than had been in twice the prior time. In order that no applicant might be unable to receive treatment, it has been arranged that an applicant whose physical condition renders him ineligible for Otisville, shall be offered admission to Riverside Hospital where, under influence of appropriate treatment and good food, he stands a chance to so improve as to make him eligible for admission at a later date.

Work for Patients at Riverside Hospital.

The same work plan in operation at Otisville has been adopted for patients at Riverside Hospital. Of course, where there are so many third stage advancing cases with unfavorable prognosis, a great many are strictly of hospital type and must be so treated, and cannot indulge in any physical exercises.

Vocational Training for Venereal Disease Patients.

It has been proposed that classes for domestics and seamstresses be established by the Department of Education among venereal disease patients at North Brother Island along lines already in operation at Inwood House and other public institutions.

Removal of Tonsils in Carriers.

A good deal of work has been performed in removal of tonsils in cases of chronic diphtheria carriers. In many instances the carrier has cleared up almost immediately following such removal.

Use of Dichlormine T.

Dichlormine T. has been used for carriers particularly those of cerebrospinal meningitis but results in some cases have not been more favorable than in other forms of antiseptic application.

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Intravenous Injections of Antitoxin.

The general use of intravenous injections of diphtheria antitoxin has been adopted in all cases possible. The results achieved have been most gratifying. The amount of antitoxin used is considerably less and response to treatment has been quicker. The administration, after first prick of the needle, is painless, and so far, there have been no unfavorable reactions. At the beginning there was a considerable reaction accompanying the injection but by preparing the antitoxin in special intravenous solutions in the laboratory this has been entirely done away with.

Influenza "Cures."

During the epidemic a very great many proprietary and other nostrums, vaccines, etc., were sent to the hospitals for use on patients. Every such remedy was referred to the Medical Board and in no instance was there submitted with the remedy, any definite information of its effect in the disease in which its agent or owner proposed to have it used. In other words, these proposed remedies were to be tried out at expense of patients. Needless to say such experimentation was not permitted.

Training School for Army Roentgenologists.

The hospitals contributed to advancement of medical education to a large degree during the year. The X-ray Laboratory was used as a training school for roentgenologists being trained for army service, this hospital being used especially for study of conditions of the nose, throat and chest, particularly chest conditions.

Lectures for U. S. Army and Navy Doctors.

During the entire year lectures and clinics were given each week to army medical officers in connection with universities and other institutions of the city, also to medical officers from the navy.

Medical Education.

Medical clinics for students from the College of Physicians and Surgeons, Medical Department of Cornell University, Medical Department of New York University, Medical Department of Fordham University, Bellevue Medical College and Long Island College Hospital, were given throughout the year.

Special clinics for the nurses from the School of Philanthropy, the Swedish Hospital Training School for Nurses, and war classes of nurses were given.

In those instances where cases were admitted with obscure symptoms, difficulty of diagnosis, or rare diseases, invitations were extended to medical attachés of the Department to visit them.

Entertainment for Patients.

In addition to medical treatment, entertainment has been provided, and the Bureau is indebted to many moving picture corporations, the St. Vincent

BUREAU OF HOSPITALS

de Paul Society, Letter Carriers' Band, Police Glee Club, Catholic Protectory Orphans' Band, Red Cross Society, and many individuals for contributions to this end.

Additions to Equipment.

A considerable number of facilities for better care of patients have been added.

At Willard Parker Hospital the X-ray Laboratory, formerly housed in small, contracted and damp quarters over a nest of steam traps, has been transferred to the second story of the office building of hospital where it is light, roomy and in every way fitted for an up-to-date laboratory.

The outside elevator on north end of Pavilion No. 4, which permits twelve 10-bed wards to be used as individual units has been completed.

At Riverside Hospital the venereal disease building with capacity for fifty patients and two new cement buildings with capacity for eight patients have been completed and placed in commission. Without these buildings it would have been impossible to have taken over the venereal disease service.

At the Kingston Avenue Hospital Pavilion No. 3 for diphtheria has been opened and proved of great value, the isolation facilities being much better than in Pavilion No. 5 where diphtheria patients were formerly treated.

Shack No. 112 at the Municipal Sanatorium for tuberculosis has been completed and opened for reception of patients.

This shack has capacity of forty beds, but its opening did not add to total capacity of the sanatorium as it was necessary to tear down certain old portable houses and useless and worn-out shacks and transfer their inmates to the new building. It, however, affords better hospital facilities than previously.

Recommendations for Improvements.

Certain conditions in housing should be corrected.

At Willard Parker Hospital the present Pavilion No. 1, which is the original Willard Parker Hospital, is of non-fireproof construction and should be razed and replaced by a modern fireproof building as soon as possible.

At Riverside Hospital elevators should be placed in some cement pavilions. These were omitted at time buildings were erected on account of lack of funds and as the tuberculosis service grows or if the buildings are used for stretcher-type cases of acute infectious diseases it will be necessary to have elevators if upper stories are to be used for this class of patients.

There should be at Riverside Hospital an adequate assembly hall. The modern conception of care of ambulatory cases of tuberculosis does not end with proper treatment and housing, but includes recreation and entertainment.

At Queensboro Hospital there is needed an administration building. When present building was erected it was on the theory that there would be comparatively few cases; therefore, a correspondingly small administrative force

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would be necessary. This estimate was based upon the number of patients from Queens that had been treated in other contagious disease hospitals prior to erection of Queensboro Hospital. Since the hospital was built it has maintained a census considerably higher than anticipated. It has passed through two epidemics where the hospital was for several months filled with patients beyond its capacity. At present a house used as a dormitory for nurses is rented in Jamaica over a half mile from the hospital and from which nurses must walk over a road with no sidewalks and in winter it is frequently almost impassable for pedestrians. The erection of a proper administration building will permit of housing the present quarters of officers for reception of patients and considerably augment its present capacity.

At the Municipal Sanatorium an infirmary adequate to its needs is an absolute necessity. The theory upon which the Sanatorium was originally started was that it would receive only cases with a favorable prognosis and that in event of infirmary care being necessary they could be returned to the city. This does not work out in practice. As a matter of fact the Sanatorium should take care of advancing second stage cases, but cannot do this in present type of shack. It must have regular hospital facilities. The need of this infirmary has been presented to the Board of Health and the Board of Estimate and Apportionment for several years and should receive favorable consideration.

Additional shacks for care of patients should be erected. A good many old shacks first erected were of a wholly temporary character and could not be expected to last more than a decade. They are rapidly wearing out and must be replaced by something of more permanent character if the sanatorium is to maintain its present census.

On December 31, the Board of Estimate and Apportionment rescinded the appropriation that had been made for erection of Bronxboro Hospital. Every argument made in favor of this hospital at time appropriation was made holds good now. The people of this rapidly growing borough have no place to send contagious diseases except to Riverside Hospital on an Island or to Willard Parker Hospital at a great distance in another borough. Contagious disease needing hospital care is always prevalent in the borough. Its isolation in a hospital is the surest method of preventing development of new cases. To fail to provide this hospital is a step backwards in Health Department development and a decided blow to the community.

Administration Problems.

A number of administrative problems have arisen which could have been more easily solved if they had been entirely within jurisdiction of the Bureau.

In application of the Workman's Compensation Law to employees of hospitals the law conflicts with regulations of the Department relative to sick leave and in all minor accident works to great disadvantage of the employee; for instance, an employee receiving a slight injury, in direct line of duty, which

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incapacitates him for a period of a week, must fill out the workman's compensation blank. If the employee returns to duty within two weeks from time of accident he receives no compensation whatever and is deprived of benefits of sick leave provided by rules of this Department. An effort should be made to correct this defect in administering the law so that employees, whether ill or off duty on account of accident, may share in sick leave.

The present storehouse system, while excellent in theory, does not work out in practice so far as the Bureau is concerned and to which the bulk of service is given. There are many reasons why entire stores of the hospitals should be under jurisdiction of the Bureau, the principle of which is that the administrative officer of the Bureau having made the budget estimate upon which appropriation for supplies, materials and equipment is made, should have control of expenditures of such appropriation. Needs of the hospitals are so varying that it is impossible that any officer except one intimately acquainted with their most minute detail wants can judge as to their necessity. The central storehouse in theory, which was always to maintain a supply of three months and constantly keep institution storehouses with a one month's supply on hand is a farce, the actual facts being that Willard Parker Hospital storehouse is made to be a contributor to storehouses at Kingston Avenue, Riverside and Queensboro Hospitals. No records are kept in local storehouses that permit executive officers in hospitals that control them, to obtain any information relative to cost of supplies they are using, nor have they any definite idea of amount of stock presumed held in the central storehouse upon which they can draw to supply needs of their institution.

It would be much better from an administrative standpoint if the ambulance station were entirely separated from transportation service in matter of repairs and replacements. Each hospital plant has a thoroughly equipped engineering force which can maintain ambulances in good running condition to better advantage than by sending them as if now done to Kingston Avenue Hospital. Ambulances are frequently sent to Kingston Avenue for trivial repairs, for want of parts necessary, when if such parts were in the hospital where ambulance is being used, it would be out of commission only a few hours instead of days as now sometimes happens.

The year, on account of the war, has been one where it was almost impossible to get a sufficient number of doctors, nurses and domestic help to carry on work of the hospitals.

In the spring session of the legislature the medical practice act was amended to permit non-licensed physicians, graduates of reputable schools to be employed in the hospitals of the city. Without this it would have been impossible to have given proper care to patients admitted during epidemic of influenza.

On January 1, the hospital for scarlet and diphtheria (Minturn Hospital), a corporation doing business within the grounds of Willard Parker Hospital on property leased to it by the city of New York closed its doors.

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Under terms of lease the property was to be returned to the city as soon as it ceased to operate as a hospital. The property will, therefore, become part of the Willard Parker Hospital plant, and as such, should be operated in connection with it. It is recommended that this hospital be operated as a private institution under same general medical control as formerly existed and that the administrative functions only be carried on by Willard Parker Hospital. The city needs these private wards for care of patients who can and are anxious to pay for such service.

During 1918 scows and vessels of various kinds tying to seawall bulkhead at Willard Parker Hospital have damaged it to considerable extent. During the entire time application has been made to Police and Dock Departments to keep this wall clear of boats, it being built on piles and not fit for mooring of large vessels.

The venereal disease service at Riverside Hospital has presented a problem of internal control with which we have been unable to satisfactorily cope. The character of patients is such that matrons of type of police matrons are necessary to maintain proper order. Every attempt to locate such matrons through the Civil Service Commission, the various prisons and charitable organizations has been without avail.

High Per Capita Cost Due to Vacancies.

At the Municipal Sanatorium the most difficult problem has been the question of maintaining a census commensurate with needs of the hospital in regard to patient labor. As stated, the character of patients admitted during 1918 was not one from which recruits for ward work could be obtained. In addition, due to lack of coöperation in the place of admission in New York City, the Sanatorium did not obtain the number of cases to which it was entitled. The immediate result of a small census is to reduce efficiency through lack of coöperative help of the patients. Another effect is to increase per capita cost and by making a bad showing in number of cases treated reduce the appropriation for ensuing year.

Federal Hospital.

The U. S. Government has built a hospital for respiratory diseases known as U. S. Government Hospital No. 8 on a parcel of land belonging to the Sanatorium immediately adjacent to the village of Otisville. The Government officials have not complied with agreement laid down for them in several instances, principally in matter of sewage disposal. They were to install a sewer which would carry sewage from the hospital to the disposal plant of the Sanatorium. Instead of that they built a sewage disposal system, which is very obnoxious in summer weather on property of the city outside the Military Reservation and discharged this sewage into a creek near the extreme southeasterly line of the Sanatorium property.

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Conservation of Supplies.

The hospital authorities have coöperated in every way possible with Federal authorities in conserving fuel, food and supplies needed for war work or whose manufacture interfered with war work. They have also kept the personnel of the hospital at lowest possible census compatible with proper treatment of patients. They have attempted by many improvements to save money by keeping expenses at lowest possible amount and have attempted to add to supplies of the hospital through utilization of garbage in hospital piggeries and transfer of home-grown vegetables from the Sanatorium and Queensboro Hospital farm.

Amongst many savings was the change of type of fuel from Buckwheat No. 3, a dirty and poor fuel, to Buckwheat No. 2, which represented actual coal and consumption of which is sufficiently less to make a material saving.

Standard Menus.

By adopting standard menus in all hospitals and placing supervision of preparation and dispensation of food under pupil dietitians systematic saving has been accomplished.

Lowest Candle Power Electric Bulbs.

By substituting lowest candle power electric bulbs over exit signs throughout hospital buildings, the constant drain on electric current has been minimized.

By establishment of a piggery at Queensboro Hospital the garbage from Willard Parker and Kingston Avenue Hospitals is now utilized and will eventually result in saving hundreds of dollars per annum.

By transfer of vegetables in large amounts from the farm at Otisville and less amounts from farm at Queensboro Hospital a considerable saving on vegetable contracts has been effected.

By transfer of supplies, materials and equipment from one hospital at time of low census to another hospital at same time having a high census has resulted in material saving.

By the use of mill-end gauze and towels in all medical services of the hospitals exclusive of surgical work a very considerable saving has been effected.

By using paper towels in contagious disease wards obviating laundry and by being immediately destroyed limiting the danger of spread of infection, a considerable saving has been effected.

The boilers at Kingston Avenue Hospital have been equipped throughout with new baffles and it is claimed by the maker that it will result in a saving of over ten per cent. on coal consumed.

Shortage of Help.

Lack of help in all divisions of the hospitals and extreme difficulty in obtaining supplies, materials and equipment has made it necessary to resort to a

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great many expedients which have been experiments in conduct of hospital service. Some have proved satisfactory and others have had to be abandoned.

Amongst the most important was the use of physicians from the Navy. The immediate result of the U. S. drafting into military service robbed the hospital of all doctors subject to draft. This included all internes and most of the physicians. It entirely broke up a staff of expert diagnosticians which the hospital service had built up during the previous ten years.

The very thorough canvass of nurses for enlistment in nursing corps of the Army, Navy and Red Cross resulted in enlistment of the majority of best nurses in the hospital service.

The orders of the Mayor that wherever possible vacancies created by enlistment of employees should remain unfilled has been carried out to extreme limit permissible with proper care of patients and the physical property of the Bureau has been allowed to deteriorate to a degree below the standard adopted and maintained under normal conditions, but not to extent of neglect. The hospitals giving a large number of beds to the Army and Navy, being short of doctors, made a request to the Navy Department to assist in care of patients admitted from the Navy. This was immediately acceded to and for greater part of the year the Naval Hospital has coöperated with the Department in supplying medical care for its personnel. Without these doctors it would have been necessary to limit admission to the civilian population.

The impossibility of obtaining trained nurses made it necessary to employ practical and trained non-graduate nurses and nurses' aids. These were recruited from various registries for nurses, institutions for care of the sick, hospital lists where Red Cross aid has been trained and the Society of the Red Cross. The services rendered, while in no way comparing with a graduate trained nurse at same time were invaluable because these willing and patriotic helpers took from the trained nurses the pure drudgery of their occupation and left them in position to assist physicians in medical and nursing care of the dangerously ill of which there were very large numbers during the epidemic.

The character of services of the hospitals of this Department normally represents about three-quarters children and one-quarter adults but with advent of admission of soldiers and sailors and the epidemic whose victims in the earlier part were almost entirely adults, entirely changed this character to one of adults and of these over nine-tenths were males and very sick. This condition necessitated attendance of male orderlies for which no provision had been made in the budget for 1918. As in the case of doctors an appeal was made to the Naval Hospital to supply corps men to act as male nurses, and these were supplied.

At the most acute period of the war and when it was impossible to obtain domestic help through agencies an advertisement was inserted in city papers that patriotic women could serve their country by giving domestic service in the hospitals of the Department where hundreds of soldiers and sailors were being treated and where such help was insufficient. A considerable number of high-

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class women, young and old accepted the positions in this spirit and remained during the period when their services were most required.

Ice Supply.

The Department of Correction in fall of 1917 having stated that it could make ice at its Harts Island plant in excess of its needs requested this Department to requisition on it for the supply needed at Riverside Hospital. The service of ice from Harts Island was entirely unsatisfactory. The character of ice was bad, it frequently was areated and rapidly honey-combed when exposed to ordinary atmospheric conditions, deliveries were irregular and when it was necessary to send the boat to Harts Island not sufficient ice was received to more than half pay for expense of trip. In summer of 1918 the service was discontinued as impracticable.

Alterations and Improvements.

1918 has been marked by many alterations and improvements in existing buildings and by opening of a number of new buildings.

At Willard Parker Hospital the executive offices of the Bureau have been extended by taking over rooms formerly used for domestic purposes and which were released when domestic activities were transferred to the new staff house and dormitory. What was formerly used for nurses' dining room is now a medical board room and lecture room for students and nurses. Without this room it would have been impossible to have adequately cared for various war classes which have received instruction during the period of war. This will also be used as a lecture room for pupil nurses who affiliate with this hospital from various training schools.

When the maids' dormitory at Willard Parker Hospital was completed it practically represented a large loft building. The original plan called for a dormitory building divided so each maid would have her own private cubicle. The hospital really got two large dormitories on a floor with accommodations for twenty maids each where it was impossible for anyone to have any privacy. The dormitory on north end of second floor has been divided into rooms accommodating three maids each and under crowded conditions may be made to serve four each. This division has so improved this dormitory that it will be extended throughout the building in 1919. The immediate result, it is hoped, will be in a better class of employees.

The equipment for staff house and nurses' home having finally been purchased permitted installation of dining rooms and kitchen in this building and has replaced in all domestic arrangements the former administration building. All equipment has been purchased for this building with exception of certain decorations, etc., for reception rooms. It is unfortunate that this equipment could not have been purchased. The expense involved was very small and

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the return would have been far reaching in comfort of employees and influence it would exert in getting the right kind.

At Riverside Hospital the maids' dormitory that has been under construction for several years has been completed with exception of minor details of plumbing and steamfitting. This building has been temporarily equipped with furniture borrowed from other hospitals and the maids have been transferred to it.

At Kingston Avenue Hospital the kitchen building has been under construction for seven years and to outward appearances was completed about six years ago. It is being held up for petty differences in installation of motive power. The whole conduct of construction of this building has been characterized by inefficiency, neglect and disregard of needs of this Department. The efficiency experts of the Bureau of Contract Supervision of the Board of Estimate and Apportionment together with the Engineer of Department of Water Supply, Gas and Electricity insisted that motor equipment should be direct current supplied by power house of Kings County Hospital, although that institution did not at that time have sufficient current to supply its own needs. The Director of this Bureau strongly protested. He drew attention of the efficiency experts to the fact that there were a great many motors of alternating current type being used in the hospital at that time, that the only source of supply that could be purchased came from the alternating current generator, that it was almost impossible that the Department of Public Charities would enlarge its plant and furnish motive power. Notwithstanding protest the direct current motors were installed and it was impossible to use the building. Appeal after appeal has been made to permit purchase of proper motor equipment. The kitchen accommodations of Kingston Avenue Hospital are not only inadequate but it is extremely difficult to maintain the building in a sanitary condition. It is hoped that in 1919 this building, which has remained so many years idle, may be utilized.

At the Municipal Sanatorium work on staff house and cow barn had to be discontinued during 1918 on account of failure of the Board of Estimate and Apportionment to approve Corporate Stock schedules providing employees to perform the work although appropriations for same were available. These corporate stock schedules were voted upon favorably in latter part of November and this Bureau was notified of this act in early part of December at a time when weather conditions would not permit of work being performed. On the 31st of December the Board of Estimate and Apportionment rescinded the corporate stock balances leaving many buildings in this Department in an incomplete condition. Recommendations for reissuing this stock have been forwarded.

With completion of staff house and nurses' home at Willard Parker Hospital it was possible to transfer physicians from their old quarters on second floor of Research Laboratory building to new quarters, making available this space for laboratory purposes which was much needed. Upon recommendation of the Director of Bureau of Laboratories alterations were made which changed the

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old dormitory into offices for clerks and the bookkeeping division of the laboratory was transferred from very much needed space to these new quarters. Various changes were made in other rooms for accommodation of chemists from the Chemical Laboratory of Bureau of Foods and Drugs. The transfer of this floor from this Bureau to Bureaus of Laboratories and Foods and Drugs furnished about 3,200 square feet of additional laboratory space.

Aid and Coöperation.

The thanks of this Bureau are due to civic bodies. The Red Cross Society has been particularly generous in supplying various articles and wearing apparel for soldier and sailor patients, in supplying the hospital with gauze and surgical dressings and in supplying nurses' aids at time of the epidemic and in supplying ambulance service of the Department to an extent that almost equalled its own and the women who gave this service cannot be too highly commended for their sympathetic care of patients entrusted to them to transfer; The Protestant Episcopal City Mission Society who gave services of a Chaplain during entire time that the hospital was crowded with military patients and during the epidemic the Episcopal Dioceses of Long Island for the service of a Chaplain at Kingston Avenue Hospital; The New York City Visiting Committee of the New York Charities Aid Association for helpful advice and to various inspectors of the State Board of Charities who have made careful inspections and intelligent and helpful recommendations.

The Bureau must commend each and every employee. In no place has there been required greater sacrifices to personal inclination than represented by the physicians in the Department Hospitals. Every division has been shorthanded. Every employee in every division has had to do overtime work in presence of the worst pestilence with which the hospitals have ever had to cope. They have seen comrades and associates stricken by the epidemic and have never faltered in performance of their duties. Without these faithful employees the good record of these hospitals during the war period never could have been attained.

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GENERAL COMMENT.

The work performed in this Bureau stands out in strong contrast with work performed in previous years, as to quantity, variety and financial returns. The entrance of the United States into war was followed by a considerable increase in applications for transcripts of certificates of births and marriages on file. This increased demand continued throughout 1917, but did not reach its climax until September, 1918. During 1917 there were 17,381 transcripts of births and 5,301 transcripts of marriages issued. In 1918 the transcripts of births issued almost trebled, there having been 45,405 copies of certificates of births issued for a large variety of purposes. The transcripts of marriage jumped from 5,301 in 1917, to 6,653 in 1918. The demands made upon the force were met by appointment of temporary clerks and satisfactory aid given by other bureaus of the department, notably the Bureaus of Child Hygiene and Preventable Diseases. The most important purposes for which transcripts of births and marriages issued were put, included those for military purposes, exemption from the draft regulations, obtainment of increases in pay to native born sailors, issuance of passports, etc. The greatest rush for transcripts of birth occurred in beginning of September when Federal authorities started their campaign to round up slackers, with result that for several weeks the various borough offices of the Department were besieged by a great number of people who desired to obtain transcripts of certificates of their births in order to prove Governmental officials their exemption from military service. The large number of transcripts of marriage records issued was the result of requests of local draft boards, there having been a large number of applicants for exemption, said transcripts to be used as corroboration of statements of individuals. In the last week of September began an increase in deaths from influenza. The devastating effects of this scourge were reflected in the large number of applications for transcripts of certificates of death of persons dying from influenza and pneumonia during October, November and December. In 1917 the number of paid transcripts issued was 57,927; in 1918 there were 72,710 transcripts of certificates of deaths issued, so that all told there were almost 125,000 transcripts of records of births, deaths and marriages on file with this Department, issued during the year, over 62,000 being issued in Manhattan.

BIRTHS.

138,046 births were reported in the entire city and a birth rate of 23.51 per 1,000 population, as against 141,564 births and a rate of 24.67 for 1917. This is the lowest birth rate recorded in the Department since 1902 when the rate was 23.36 per 1,000 population. The highest rate recorded was in 1908 in which the rate of 28.38 occurred. There was a falling off in births recorded in each of the boroughs, as compared with 1917, with exception of Richmond.

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The effect was most noticeable in Manhattan, there having been a decline in births reported from 61,612 to 59,434—a decrease of 2,178.

In The Bronx the effect of the war on birth rate was less marked, there having been 16,902 reported in 1917, as against 16,843 in 1918—a decrease of 59.

In Brooklyn the births reported in 1917 were 50,468, as against 49,568 in 1918—a decrease of 900.

In Queens the respective figures were 10,050 and 9,518—a decrease of 532.

In Richmond there was an increase in 1918 over 1917 of 151 births, the figures for the two years, respectively, being 2,683 and 2,532.

The lowest birth rate occurred in Manhattan, with a rate of 21.76. The other boroughs show following rates:

Queens	24.24
Brooklyn	24.49
Richmond	26.27
The Bronx	27.06

The increase in the birth rate in Richmond is due to increase in resident population as result of a stimulation of ship building activities in that borough. The amount of wages per capita increased considerably during 1918 in this borough, with result that a greater degree of prosperity was encountered by individuals.

MARRIAGES.

The number of marriages reported was somewhat below the number reported during 1917, in which the greatest number was recorded as having taken place—59,210. In 1918 the number fell to 56,733—a decrease of 2,477. The marriage rate for the city decreased from 10.32 in 1917 to 9.66 in 1918. The decrease occurred in each borough. In Manhattan an increase of 2,756 marriages was reported; this was not a real increase. It was due to fact that the City Clerk, who performs a large number of marriages, was unable, by lack of clerical help, to file his reports sooner with this Department.

DEATHS.

98,119 deaths were reported, as against 78,575 in 1917—an increase of 19,544. Relatively, by taking into consideration the increase in population, the increase in mortality was measured by 17,674 deaths. The causes for this tremendous increase will be taken up later in analyzing returns from individual causes of death.

The mortality from all causes increased in boroughs, as follows:

Manhattan	7,356
The Bronx	2,621
Brooklyn	7,467
Queens	1,467
Richmond	626

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The death rate for the city was 16.71, as against 13.70 for 1917—an increase of 3.01 per 1,000 population.

Typhoid Fever.

196 deaths were reported with a death rate of 3 per 100,000 population. This is the lowest rate from this cause that the city has ever experienced. Twenty years ago the rate was 16 per 100,000, which rose to 21 in 1900, which gradually decreased with slight fluctuations up to 1918. If the rate of 1891 prevailed during 1918, there would have been 939 deaths reported from this cause, in lieu of 196, a saving of 743 lives.

Typhus Fever.

No deaths were reported. In 1917 there were two deaths reported. Typhus fever has not figured to any extent in mortality lists of the city since the epidemic of 1892?

Malarial Fevers.

Eight deaths were reported as against 10 during 1917. These figures are in marked contrast to those of early years of this Department, the death rate from this cause during the year being 1.4 per 1,000,000 inhabitants as against 260 during the decennial 1868 to 1877; 300 during 1877 to 1887; 180 during 1888 to 1897; 30 during 1898 to 1907; 5 during 1908 to 1917.

Undoubtedly, the decrease in malaria as a cause of death is due, in some measure, to a more accurate certification of causes of death and to inclusion of deaths that in early years were attributed to malaria, though in reality due to typhoid fever.

EPIDEMIC OF INFLUENZA AND PNEUMONIA (SEPT. 15 TO NOV. 17).

The first appearance, in recent years, of influenza in this city was in the last week of December, 1889, and the disease was in evidence for seven weeks during the beginning of 1890. The rise, culmination, and decline occupied seven weeks. It reached its highest point in the second week. The second epidemic, which occurred in week of March 26, 1891, was much slower in its rise, the culminating point not being reached until the fifth week, and its decline was much more protracted—the epidemic not having spent itself until at least eight weeks after culminating point.

The epidemic of 1890 had its effect directly on respiratory disease and tuberculosis, all other causes being very little affected. The epidemic of 1891, affected not only the respiratory causes of death, but also the mortality from other causes increasing them to a considerable extent. Since these epidemics, influenza became endemic in this city; up to the present year from 100 to 500 deaths were reported yearly from influenza, but at no time was the toll taken at all equal to that exacted during the present epidemic, 10,886 deaths being

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reported from influenza from September 15 to November 16, inclusive. In addition there were reported 9,722 deaths from both pneumonias during same period.

Survival Immunity.

Newsholme, the great English authority on vital statistics, in a recent publication, gives opinion as follows:

"If one attack conferred a considerable immunity against repeated attacks, influenza would become much less prevalent; but, unfortunately, this is not so, and the difficulty of prevention is correspondingly increased."

This view of influenza immunity is substantiated by the fact that, notwithstanding consecutive local manifestations of this disease in the city during 28 years, the present epidemic in its intensity and virulence surpassed all previous lists of mortality resulting from this cause.

Age Groups, Affected.

If we consider the influenza death rates, as based on deaths reported from influenza, with or without pneumonia as a contributory cause, and compare those of the epidemic of 1891 with those of 1918, we find that every age group up to 55 shows an increased mortality, varying from twice to fifteen times as great at the eight age groups preceding that of 55 to 65. In this latter group, the mortality was 16 in 1891 and 15 during present epidemic. In the age group 65 and over, we find that in 1891 the rate was 67 per 1,000 living at those ages, as against 18 during present epidemic—more than $3\frac{1}{2}$ times as great. The possibility arises that during the two previous pandemics of influenza in 1890 and 1891 an immunity was conferred upon individuals at that time who were 28 years of age and over, the disease affecting persons at and above that age much more than those at lower age groups.

The outstanding feature of the present epidemic as to mortality of various age groups is the extremely high mortality at all groups under 45 years. It is very evident that groups under fifteen years of age suffered very little from infection and that the question of closing public schools, which was agitated for a time, could be answered in the negative by reason of the low mortality, especially among the group 5 to 15 years, those years comprising the ages of children attending public schools. It is also noteworthy that from the ages 15 to 45 suffered greatest from the epidemic, 67 per cent. of all deaths from pneumonia and influenza having occurred at these two groups. Again the percentage of deaths from 45 to 65, and 65 and over, are below the normal and the experience of epidemic of 1891. The first death reported from influenza was a male aged 32. The age groups first affected, which occurred during first two weeks, represented ages from 21 to 35. The age group next affected to a measurable extent was between 15 and 20 years and between 35 and 45 years. The next group affected was between 45 and 65 and immediately following,

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those under fifteen years. The age groups 65 years and over was the last affected and then only very slightly. The greatest number of deaths reported from both causes was at the 28th year, with 1,013 reported; the next individual age was 29, with 817 deaths; 30 years, with 816 deaths; 27 years, with 906 deaths; 26 years, with 780 deaths; 25 years, with 730 deaths; 24 years, with 690 deaths; 23 years, with 571 deaths; 31 years, with 540 deaths, and 22 years, with 530 deaths. From 21 to 31, there were 3,530 deaths reported among males, which gave a yearly death rate of 41.5 per 1,000 living at this age.

From the beginning of the epidemic on September 15 until the 11th of October, males were considerably more affected than females. From the 12th of October the deaths of females were in excess of males, until the culminating point on October 19 and thereafter up to the 1st of November before the disparity between sexes was equalized from this date on. The mortality among sexes was approximately the same. It was to be expected that age groups affected by the selective and volunteer service from 18 to 40 would show a diminished mortality among males, as against females. This was true on the group of 18 years up to 30 years. At 31 years males were in excess and at all succeeding age groups considerably in excess up to the 55th year. At the group from 55 to 65 the numbers were approximately equal. At 65 years and over, by reason of larger number of surviving females in the community at this age, there were 210 deaths among males, as against 292 among females.

Rise, Culmination and Decline of the Epidemic.

Taking both causes together, the number of deaths reported on September 15 was 12. The daily number of deaths increased from this date to 18, 26, 24, 13, 16, and then in a gradual ascending scale day by day, with few exceptions, up to the 20th of October, when 809 deaths occurred. There was practically only one break in the rapidly ascending curve in daily deaths from influenza, the number from this cause reaching its height on October 20, when 457 deaths were reported. That same day there were 352 deaths reported from pneumonia, which was the highest mortality from pneumonia during the epidemic. From October 20, the actual daily mortality descended gradually with few interruptions, until ending of the compilation, November 26, when 50 deaths were reported from the two causes combined. The highest week of mortality was the fifth week, in which 5,260 deaths were reported, as compared with approximately 2,000 in fifth week of the epidemic of 1891, and 2,180 in second week of the epidemic of 1890, the two last figures being corrected to correspond with increase in population.

Effect of Marital Condition.

At the age group 15 to 24, single males showed a considerably higher death rate than single females; on the other hand, married males showed a

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much lower death rate, 26, than married females, 41 per 1,000; at 25 to 45, single males showed a much higher death rate, 31, than single females, 21; married males showed a rate of 29, as against 33 among married females; widowed males showed a rate at this age group of 36, as against widowed females, 23. Undoubtedly the increase in deaths among pregnant females caused this reversal of the usual excess of mortality of single and married males as compared with females. At 45 years and over, the single males was higher than widowed and married males.

Comparative Mortality of Six Largest Cities.

The culminating week was taken in each instance and rates calculated for three preceding and three succeeding weeks, with result that Philadelphia showed a rate of 138 at its culminating week; Baltimore, 119; Boston, 84; Buffalo, 80; Newark, 54, and New York, 48. The curves of ascent and descent were substantially the same as regards angle of inclination. The combined rates for these six cities for the seven weeks covered was 53 for Philadelphia; 47 for Baltimore; 40 for Boston; 33 for Buffalo; 32 for Newark, and 27 for New York. Evidently the epidemic played much less havoc among populations of middle western cities, Cleveland being the same as New York as regards combined rate for seven weeks, Chicago being slightly lower. St. Paul, Cincinnati, St. Louis and Minnesota were much lower than other cities compared.

Non-Resident Deaths.

Non-resident deaths during the epidemic of pneumonia increased considerably above normal. From September 14 to November 16, 945 deaths were recorded, of which 759 were males and 186 females, due entirely to influenza and pneumonia. Ordinarily we have in a year about 1,200 deaths of non-residents from all causes, and many of these occur among persons who come to New York for surgical and medical treatment. During the epidemic there were 23 deaths of children under five years of age; 4 between 5 and 10 years, and 2 between 10 and 15 years. The next age group, 15 to 20 years, showed 89 deaths from these two causes. The ages at which most deaths occurred among non-residents were between 20 and 30 years, the highest number at any individual year being at 24th year, at which 70 deaths were recorded as a result of the epidemic. The total deaths of non-residents between 21 and 31 years were 612; between 35 and 45 years 96; at 45 years and over, 52. Of these 945 deaths, 285 were among soldiers and 121 sailors. There were also reported 19 deaths of female nurses who came to the city to aid in combating the epidemic. Thirteen deaths occurred among visiting merchants, and 23 among laborers who were non-residents.

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Among Pregnant Women.

There were 10,400 deaths of females during the epidemic, 5,565 being reported from influenza and 4,835 from both forms of pneumonia. Of this total, upon 151 certificates of death abortion was given as a contributory cause. Puerperal eclampsia was given upon 34 certificates, one from puerperal septicemia and 16 mentioned childbirth as a complication, so that all told 202 deaths were reported with childbirth as a contributory cause on the certificates of death, and which gave as the primary cause influenza or pneumonia. Curiously enough the number of deaths reported from puerperal causes without qualification as to existence of either influenza or pneumonia during the ten weeks of the epidemic was normal, there having been in that period 112 deaths from puerperal diseases, as against 107 in same period of 1917, at which time there was no epidemic. Unfortunately, we have no figures showing the effect of influenza and pneumonia in producing premature delivery during previous epidemics, but undoubtedly the figures above quoted are considerably above what has happened during other epidemics of this disease. Corroboration of this statement is to be had considering the deaths from congenital causes among infants during the epidemic. A review of figures shows that there were during the ten weeks, 289 more deaths among infants from prematurity, atelectasis and malformations than in corresponding period of 1917. It is also in evidence that the infection did not begin to show itself until fourth week of the epidemic, in which there was an immediate and distinct increase from below the normal of the preceding three weeks among congenital causes. The culminating week of the epidemic, showed 200 deaths from congenital diseases, as against 103 in 1917. From this week on there was an increase above normal during succeeding weeks, so that we might add as a conclusion that there were almost 500 deaths of pregnant women and prematurely born infants due entirely to effects of the epidemic.

Among Colored Races.

There were 19,899 deaths from influenza and the pneumonias among white persons; 604 among Negroes; 61 among Chinese; 39 among Japanese and 5 among Indians. The difficulty of obtaining any accurate idea of the populations, especially among the colored persons, precluded making death rates thereon. The latest returns of the number of Negroes, Chinese and Japanese in the community were those of census of 1910 and by reason of the large influx, especially of the Negro, into the city since 1914, it was deemed inadvisable to try and construct racial rates.

In Congested Parts of City.

Seven districts were taken as extreme examples of congested and non-congested areas. District number one with population of 102,000 and an average of sixty persons per dwelling gave a death rate per 10,000 of 16, representing

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280 deaths during the ten weeks of the epidemic; this district is inhabited almost exclusively by Russian, Austro-Hungarian and Polish Jews. In second district, the number of deaths was 214, giving a rate of 14 per 10,000, similar to the first in race and nativity composition, with average of sixty persons per dwelling and population of 131,000. In third district there were 226 deaths, giving a rate of 18 per 10,000; the population being 75,000, with average of fifty persons per dwelling; almost exclusively Italian. The fourth district, with population of 84,000 and average of 47 persons per dwelling, had 350 deaths, which gave a rate of 24 per 10,000; also entirely Italian. The fifth district composed of various nationalities, Americans, Germans and Irish predominating, with average of thirty persons per dwelling, furnished 241 deaths and a rate of 22 per 10,000. The sixth district with population of 45,000 and average of 16 persons per dwelling, all under ideal sanitary conditions in private houses or high class apartments, furnished 134 deaths and a rate of 17 per 10,000. The seventh district with population of 34,000 and average of fourteen persons per dwelling, high class neighborhood nearly all private houses, furnished 86 deaths and a rate of 15 per 10,000. I have serious doubts about the comparability of these rates, as it was impossible to obtain age distribution in the various districts. The epidemic, as we know, affected the younger members of the community, especially those between fifteen and fifty-five years, and it is likely that the proportion of persons living at those ages was much higher in congested districts than in non-congested ones. Other things being equal, it would be supposed that death rates in congested districts would be much higher than in high class districts. Again, experience shows that the death rate among Russian and Austro-Hungarian Jews in this city is lower and has been lower, if not always, at least for many years, than among other nationalities. The death rate in Italian quarters is always higher than in Jewish quarters.

Occupational Mortality.

The largest number of deaths reported among the various occupational groups was laborers with 1,106 deaths, office clerks 728, chauffeurs and drivers 426, porters and janitors 415, soldiers 406, merchants 347, tailors 302, employees of department stores 231, clothing operators 189, carpenters 167, painters 160, hotel help 152, teachers 105, bartenders 105, electricians 101, policemen 76, shoemakers 66, barbers 56, physicians 59, trained nurses 59, longshoremen 58, butchers 49, firemen 32, lawyers 23, undertakers 6.

Death rates based upon the numbers engaged in occupations are notoriously misleading, unless we have as a working basis the division of different occupations into age groups, which has been impossible to obtain. Our tables show mortality among occupational groups at various ages of decedents; however, the following rates have been calculated based on approximate numbers engaged in occupations, and, while the comparative mortality amongst various callings might lead into error, still the rates below are given as showing exposure to

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infection and mortality as a whole in each occupation. The rates are based on each 1,000 persons engaged in various occupations during epidemic. The highest rate was among electricians 25, butchers 22, plumbers 17, machinists and painters 12 each, policemen 7, teachers 7, physicians 6, carpenters 6, furriers 5, firemen 6, street cleaners 4 and letter-carriers 3. Rates in other occupations cannot be estimated, as numbers engaged therein were not obtainable.

From a cursory perusal of rates it seems that highest rates were among persons engaged in indoor employment, with the exception of teachers among whom mortality was quite low, seven per thousand. The rates per 1,000 among civil employees were: policemen, 7; firemen, 6; street cleaners, 4, and letter-carriers, 3. These rates are only approximately accurate, and should be used cautiously. It shows necessity of improvement in methods of ascertaining mortality rates by occupations.

The foregoing analysis of mortality from influenza and pneumonias includes the period from September 15th to November 16th. The pandemic of influenza recrudesced in December and while the infection did not assume the tremendous proportions which characterized its appearance in September, still the deaths as result of infection amounted to far above normal during December and the early months of 1919.

The following table shows deaths from all causes from the beginning of the epidemic in September, 1918, to June 1, 1919, as compared with corresponding nine months of previous years, 1917 and 1918, and deaths from influenza and pneumonia for similar periods. It can be seen that the mortality had more than trebled.

DEATHS FROM ALL CAUSES, AND INFLUENZA AND PNEUMONIAS COMBINED BY BOROUGH, SEPTEMBER 1, 1918, TO JUNE 1, 1919

Borough	All Causes		Influenza and Pneumonia		Excess Mortality Period 1918 to 1919 over Period 1917-1918	
	Sept. 1, 1918, to June 1, 1919	Sept. 1, 1917, to June 1, 1918	Sept. 1, 1918, to June 1, 1919	Sept. 1, 1917, to June 1, 1918	All Causes	Influenza and Pneu.
Manhattan.....	37,047	27,916	15,413	4,883	9,131	10,530
The Bronx.....	9,769	6,513	4,561	1,168	3,256	3,393
Brooklyn.....	29,897	21,558	13,206	4,183	8,339	9,023
Queens.....	6,136	4,359	2,774	783	1,777	1,991
Richmond.....	2,043	1,365	969	237	678	732
City.....	84,892	61,711	36,923	11,254	23,181	25,669

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CITY OF NEW YORK.
ESTIMATED POPULATION DEATHS AND DEATH RATES FROM
INFLUENZA AND PNEUMONIA COMBINED.
September 14 to November 16, 1918.

	Estimated Population, 1918.			Influenza and Pneumonia Deaths.			Death Rate Per 1,000 Est. Pop.		
	Both Sexes.	Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.	Males.	Females.
Total all ages.....	5,664,043	2,726,793	2,937,240	20,608	10,207	10,401	21.10	21.71	20.54
Under 5 years.....	623,373	314,373	308,400	3,101	1,565	1,536	28.86	28.83	28.89
5 to 9 years, inclusive.....	840,200	370,000	370,200	787	312	444	8.13	6.70	9.53
10 to 14 years, inclusive.....	819,660	398,380	361,400	660	210	369	6.36	4.72	7.96
15 to 19 years, inclusive.....	837,360	390,660	396,700	1,094	539	555	11.39	11.99	10.85
20 to 24 years, inclusive.....	886,200	398,000	398,600	2,608	1,111	1,497	25.80	26.99	25.06
25 to 34 years, inclusive.....	1,013,300	461,100	552,200	7,392	3,678	3,716	42.32	46.24	39.03
35 to 44 years, inclusive.....	841,100	429,900	411,200	2,749	1,267	1,482	18.96	21.55	16.81
45 to 54 years, inclusive.....	840,200	378,800	361,400	1,225	683	542	13.15	14.21	12.03
55 to 64 years, inclusive.....	270,100	122,060	138,060	612	304	308	12.14	13.35	12.94
65 years and over.....	167,360	76,300	91,060	502	210	292	17.39	15.96	18.60
Unknown.....	5,220	5,174	46

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CITY OF NEW YORK NON-RESIDENT DEATHS INFLUENZA AND PNEUMONIA SEPTEMBER 14 to NOVEMBER 16, 1918

	Both Sexes		Males		Females	
	Influenza	Pneumonia	Influenza	Pneumonia	Influenza	Pneumonia
Total, all ages.....	626	319	511	248	115	71
Under one year.....	3	6	2	3	1	3
1 to 4 years.....	8	6	3	1	5	5
5 to 9 years.....	2	2	1	1	1	1
10 to 14 years.....	1	1	..	1	1	..
15 to 19 years.....	63	27	53	23	10	4
20 years.....	32	12	29	11	3	1
21 years.....	37	18	34	15	3	3
22 years.....	24	25	30	21	4	4
23 years.....	39	23	35	19	4	4
24 years.....	50	20	36	16	14	4
25 years.....	35	13	33	10	2	3
26 years.....	32	16	28	15	4	1
27 years.....	32	13	24	7	8	6
28 years.....	36	21	29	17	7	4
29 years.....	36	10	27	9	9	1
30 years.....	26	17	21	8	5	9
31 years.....	28	11	24	9	4	2
32 to 34 years.....	46	17	38	13	8	4
35 to 44 years.....	59	37	48	31	11	6
45 to 54 years.....	23	11	15	9	8	2
55 to 64 years.....	5	5	2	4	3	1
65 and over.....	..	8	..	5	..	3

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CITY OF NEW YORK NON-RESIDENT DEATHS BY OCCUPATIONS INFLUENZA AND PNEUMONIAS SEPTEMBER 14 to NOVEMBER 16, 1918

	INFLUENZA AND PNEUMONIA			INFLUENZA			PNEUMONIA		
	Both Sexes	M.	F.	Both Sexes	M.	F.	Both Sexes	M.	F.
Building:									
Plasterers.....	1	1	..	..	..	..	1	1	..
Not stated.....	1	1	..	..	..	..	1	1	..
Clothing:									
Tailor.....	5	3	2	5	3	2	..	..	..
Clerical Service:									
Office.....	13	10	3	6	4	2	7	6	1
Department Store.....	10	7	3	7	6	1	3	1	2
Factory.....	3	1	2	1	..	1	2	1	1
Not stated.....	1	1	..	..	..	..	1	1	..
Liquor Traffic:									
Bartenders.....	2	2	..	2	2	..	..	..	..
Trades:									
Plumbers.....	2	2	..	2	2	..	..	..	..
Painters.....	2	2	..	..	..	..	2	2	..
Carpenters.....	7	7	..	..	..	..	7	7	..
Other trades.....	18	15	3	12	10	2	6	5	1
Mechanics.....	10	10	..	5	5	..	5	5	..
Machinists.....	5	5	..	5	5	..	..	..	..
Cigarmakers.....	1	1	..	..	..	..	1	1	..
Electricians.....	2	2	..	1	1	..	1	1	..
Butchers.....	1	1	..	1	1	..	..	..	..
Shoemakers.....	1	1	..	1	1	..	..	..	..
Personal Service:									
Domestics.....	6	2	4	1	1	..	5	1	4
Hotel Help.....	14	13	1	8	8	..	6	5	1
Barbers, etc.....	..	..	..	..	..	..	..	..	..
Porters, Janitors, etc.....	20	18	2	16	14	2	4	4	..
Transportation:									
Chauffeurs, etc.....	2	2	..	2	2	..	..	..	..
Street Railway.....	2	2	..	1	1	..	1	1	..
Steam Railway.....	11	11	..	7	7	..	4	4	..
Boats, etc.....	65	65	..	46	46	..	19	19	..
Other.....	4	4	..	1	1	..	3	3	..
Civil Service:									
Policemen.....	2	2	..	1	1	..	1	1	..
Firemen.....	5	5	..	3	3	..	2	2	..
Soldiers.....	285	285	..	206	206	..	79	79	..
Sailors.....	121	121	..	88	88	..	33	33	..
Professional Service:									
Lawyers, Judges.....	2	2	..	..	..	..	2	2	..
Physicians, etc.....	6	6	..	4	4	..	2	2	..
Teachers.....	11	4	7	7	3	4	4	1	3
Clergymen—Religious.....	2	2	..	1	1	..	1	1	..
Civil Engineers.....	2	2	..	2	2	..	..	..	..
Trained Nurses.....	20	1	19	14	1	13	6	..	6
Writers, Actors, etc.....	15	11	4	9	7	2	6	4	2
Miscellaneous:									
Merchants.....	13	12	1	12	11	1	1	1	..
Bankers, Brokers.....	3	2	1	2	1	1	1	1	..
Outside, Agents.....	3	3	..	1	1	..	2	2	..
Longshoremen.....	1	1	..	1	1	..	..	..	..
Others.....	1	..	1	1	..	1	..	..	..
Laborers.....	23	23	..	14	14	..	9	9	..
Managers.....	2	2	..	1	1	..	1	1	..
Not Stated.....	219	86	133	129	46	83	90	40	50

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CITY OF NEW YORK.

DEATHS BY OCCUPATIONS.

INFLUENZA AND PNEUMONIAS—SEPT. 14 TO NOV. 16, 1918, INC.

	Influenza and Pneumonia.			Influenza.			Pneumonia.		
	Both Sexes.	M.	F.	Both Sexes.	M.	F.	Both Sexes.	M.	F.
Building:									
Plasterers.....	20	20	..	9	9	..	11	11	..
Foundation Workers.....	10	10	..	10	10	..	..	..	..
Iron Workers.....	29	29	..	15	15	..	14	14	..
Not Stated.....	12	12	..	8	8	..	4	..	..
Clothing:									
Pressers.....	36	34	2	15	14	1	21	20	1
Operators.....	189	92	97	104	42	62	85	50	35
Finishers.....	18	9	9	13	9	4	6	..	6
Tailors.....	302	208	94	144	93	51	158	116	43
Clerical Service:									
Office Clerks.....	728	439	289	400	236	164	328	203	125
Department Stores.....	231	180	51	124	97	27	107	83	24
In Shops.....	31	3	28	18	1	17	13	2	11
Not Stated.....	10	6	4	9	6	3	1	..	1
Liquor Traffic:									
Bartenders, etc.....	105	105	..	50	50	..	55	55	..
Trades:									
Blacksmiths.....	30	30	..	20	20	..	10	10	..
Plumbers.....	77	77	..	39	39	..	38	38	..
Painters.....	160	100	..	78	78	..	82	82	..
Printers.....	35	35	..	21	21	..	14	14	..
Furriers.....	31	30	1	18	17	1	13	13	..
Carpenters.....	167	167	..	78	78	..	89	89	..
Bakers.....	86	86	..	36	36	..	50	50	..
Others.....	589	465	124	339	268	71	250	197	53
Mechanics.....	78	78	..	44	44	..	34	34	..
Machinists.....	121	121	..	74	74	..	47	47	..
Cigarmakers.....	22	14	8	11	5	6	11	9	2
Electricians.....	101	101	..	44	44	..	57	57	..
Butcher.....	49	49	..	26	26	..	23	23	..
Shoemakers.....	66	66	..	39	39	..	27	27	..
Personal Service:									
Domestics.....	89	15	74	50	9	41	39	6	33
Hotel Help.....	152	121	31	90	72	18	62	49	13
Barbers, etc.....	56	56	..	28	28	..	28	28	..
Porters, Janitors, etc.....	415	329	86	212	162	50	203	167	36
Transportation:									
Chauffeurs, Drivers.....	426	423	3	248	247	1	178	176	2
Conductors, etc., Street Ry.....	32	31	1	19	19	..	13	12	1
Conductors, etc., Subway.....	44	35	9	24	17	7	20	18	2
Conductors, etc., Elevated.....	5	5	..	2	2	..	3	3	..
Steam Railway.....	86	86	..	45	45	..	41	41	..
Steam Boats, Ferries.....	119	119	..	74	74	..	45	45	..
Others.....	29	29	..	16	16	..	13	13	..
Civil Employees:									
Policemen.....	76	76	..	42	42	..	34	34	..
Firemen.....	32	32	..	16	16	..	16	16	..
Street Cleaners.....	11	11	..	6	6	..	5	5	..
Letter Carriers.....	8	8	..	3	3	..	5	5	..
Others.....	10	9	1	7	7	..	3	2	1
Soldiers.....	406	406	..	276	276	..	130	130	..
Sailors.....	209	207	2	129	129	..	80	78	2
Professional:									
Lawyers, Judges.....	23	23	..	10	10	..	13	13	..
Physicians, Dentists.....	59	58	1	46	45	1	13	13	..
Teachers.....	105	22	83	68	17	51	37	5	32
Clergymen (Religious).....	19	13	6	9	5	4	10	8	2
Engineers (Civil), Architects.....	30	26	4	18	15	3	12	11	1
Trained Nurses.....	59	..	59	43	..	43	16	..	16
Others (Writers, Actors).....	133	110	23	80	67	13	53	43	10
Miscellaneous:									
Merchants.....	347	332	15	202	190	12	145	142	3
Brokers, Bankers.....	33	31	2	20	19	1	13	12	1
Salesmen, Outside.....	85	81	4	42	39	3	43	42	1
Peddlers.....	53	53	..	29	29	..	24	24	..
Longshoremen etc.....	58	58	..	36	36	..	22	22	..
Laborers—Common.....	1,106	1,106	..	569	569	..	537	537	..
Undertakers.....	6	6	..	4	4	..	2	2	..
Managers, not defined.....	26	26	..	14	14	..	12	12	..
All Others.....	34	15	19	26	12	14	8	3	5

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CITY OF PNEUMONIA DEATHS ACCORDING TO DATE OF DEATH SEX AND

	Total Both Sexes	Total Males	Total Fe- males	Under 1 yr.		1 to 4 Yrs.		5 to 9 Yrs.		10 to 14 Yrs.		15 to 19 Yrs.		20 Yrs.		21 Yrs.		22 Yrs.		23 Yrs.	
				M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
September:																					
14.....	9	5	4	1	1																
15.....	11	8	3	1																	
16.....	16	7	9	1	5																
17.....	18	14	4	3	1	1	1	1													
18.....	24	16	8	3		1	1	1	1												
19.....	21	11	10	1	2	1	3														
20.....	11	8	3	3	1																
21.....	11	5	6	2		1															
22.....	20	13	7	1	1	2															
23.....	21	13	8		3	3															
24.....	28	19	9	1	2	1	1	1													
25.....	36	20	16	1		2	2														
26.....	32	24	8	1		2	1														
27.....	23	17	6		2	1		1													
28.....	52	38	14	2		2		1													
29.....	51	31	20	3	1	1		2	1												
30.....	60	51	18	3	2	1	1														
October:																					
1.....	59	35	24	1	1	2	4		1												
2.....	82	49	33	3	1	1	7	1	1												
3.....	96	54	42	4	4	6	6	1	1												
4.....	124	67	57	1	4	4	8	4													
5.....	142	84	58	3	5	3	4	3	3												
6.....	157	93	64	4	3	4	5	3	4												
7.....	154	89	65	5	8	6	5		1	1	1	3	9	2	2	3	3	4	1	5	4
8.....	173	92	81	5	6	2	8	2	4	3	5	2	6	1	1	5	3	1	1	3	2
9.....	189	101	88	5	7	7	7	2	4	2	2	6	6	2		4	2	2	1	1	1
10.....	246	133	113	5	5	7	8	4	6			11	4	4	3	5	2	3	2	4	3
11.....	260	134	116	5	5	6	14	3	1	5	5	6	13	3	1	3	6	6	3	6	3
12.....	273	131	142	6	5	9	17	6	5	3	10	7	6	1	4	3	4	1	8	4	0
13.....	332	173	159	7	7	16	21	3	10	5	5	7	8	6	5	8	4	6	7	4	3
14.....	280	137	143	7	8	6	11	5	7	1	5	11	10	1	1	2	4	7	4	1	7
15.....	278	121	157	9	8	10	28	6	3	3	6	6	3	5	2	4	2	5	4	1	7
16.....	343	169	174	5	3	16	15	6	8	4	2	10	12	4	1	6	3	12	3	5	1
17.....	352	170	182	10	5	20	25	7	8	10	8	5	7	2	2	4	3	5	7	3	3
18.....	351	173	178	10	9	21	16	9	9	4	6	4	12	2	6	4	3	5	1	5	1
19.....	287	151	136	17	4	14	15	4	6	4	4	7	8	2	4	2	2	1	2	7	4
20.....	352	165	187	8	8	26	22	5	8	5	12	10	9	3	2	2	4	2	1	1	4
21.....	328	151	177	13	6	18	21	5	8	4	10	6	9	1	3	4	5	1	6	3	6
22.....	327	145	182	18	10	20	8	2	7	4	8	7	8	2	2	4	1	5			
23.....	319	142	177	13	14	26	26	7	10	5	3	5	8	1	4	3		7	4	6	6
24.....	335	156	179	10	17	25	21	4	4	1	3	8	6	2	2	3	1	10	3	7	4
25.....	324	150	174	12	8	24	34	5	10	3	5	2	7	5	2	3	1	1	3	2	3
26.....	287	123	164	7	6	19	31	4	8	2	8	7	7	1	1	1	1	3	2	4	3
27.....	300	134	166	11	7	21	26	5	6	2	9	4	5	4	1	1	2	2	5	4	3
28.....	221	109	122	8	8	20	21	4	6	3	2	5	3	2		2	3	2	5	1	4
29.....	221	108	113	8	3	15	16	2	4	1	3	6	5		2	3	2	3	5	1	3
30.....	218	94	124	15	9	17	25	2	8	2	1	2	6	3	2		1	2		3	3
31.....	190	94	96	5	8	19	12	4	2		2	6	2		1		2		4	1	2
November:																					
1.....	179	85	94	9	10	16	15	2	3	3	1	4	5	1	1	1	1	3	1	2	
2.....	163	90	73	3	16	13	6	2	1	1	4	3	1		2	2	1	3	1	5	
3.....	148	80	68	7	6	17	10	2	3	1	1	5	1		2	3	2	1	1		
4.....	162	88	74	9	7	21	14		4	2		4	6		2	3		1	1	2	3
5.....	180	69	61	8	5	11	6	2	8	1	2	3	2	1	3	2	1	1	3	2	2
6.....	116	60	56	5	2	11	12	1	5	3	1	1	3	3	2		1	1	1	1	2
7.....	115	61	54	7	4	8	11	1	4	2		1	1	1		2	1		1	2	
8.....	96	46	50	2	5	6	7	1	3		2	1	1		1		2			1	
9.....	85	43	42	5	6	9	9	2		1	1	1	3		1		4		1		
10.....	85	43	42	7	2	4	8	2													
11.....	81	38	43	4	2	0	9	1	1			2	2		1				1	1	1
12.....	70	33	37	1		10	6	1	1		2				1				1	1	1
13.....	65	35	30	4	5	4	2	4	1		1	1			1				1	1	1
14.....	50	25	25	3	3	4													2	1	1
15.....	55	25	30	7	2	3	6	2	3												
16.....	65	39	26	7	3	5	2	1													
	9722	4886	4836	360	283	584	609	151	207	104	165	219	240	91	78	96	93	88	142	100	139

NEW YORK
AGE. SEPTEMBER 14 TO NOVEMBER 18, 1918 INCLUSIVE

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BUREAU OF RECORDS

CITY OF
INFLUENZA DEATHS ACCORDING TO DATE OF DEATH

DATE.	Total, Both Sexes.	Total		Under One Year.		1 to 4 Yrs., incl.		5 to 9 Yrs., incl.		10 to 14 Yrs., incl.		15 to 19 Yrs., incl.		20 Yrs.		21 Yrs.		22 Yrs.		23 Years.	
		Males.	Fe- males.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
September:																					
14	1	1	1																		
15	2	1	1																		
16	2	1	1																		
17	2	1	1																		
18	2	1	1																		
19	3	3	3																		
20	2	1	1																		
21	5	5	5																		
22	3	2	1																		
23	5	4	1																		
24	11	9	2																		
25	9	7	2																		
26	20	18	2																		
27	23	19	4																		
28	25	17	8																		
29	42	27	15																		
30	48	27	21																		
October:																					
1	49	32	17																		
2	53	30	23																		
3	62	38	24																		
4	81	51	30																		
5	89	48	41																		
6	126	76	50																		
7	137	76	61																		
8	157	91	66																		
9	195	98	97																		
10	240	132	108																		
11	263	127	136																		
12	284	137	147																		
13	297	151	146																		
14	317	155	162																		
15	364	178	186																		
16	413	211	202																		
17	441	215	226																		
18	449	213	236																		
19	444	202	242																		
20	457	223	234																		
21	428	222	206																		
22	416	195	221																		
23	436	203	233																		
24	426	190	236																		
25	456	206	250																		
26	399	172	227																		
27	342	159	183																		
28	342	150	192																		
29	311	149	162																		
30	305	144	161																		
31	278	123	155																		
November:																					
1	206	96	110																		
2	203	98	105																		
3	180	85	95																		
4	180	79	81																		
5	129	61	68																		
6	105	54	51																		
7	99	55	44																		
8	92	36	56																		
9	68	33	35																		
10	66	30	36																		
11	68	32	36																		
12	47	26	21																		
13	48	24	24																		
14	51	30	31																		
15	54	26	28																		
16	52	27	25																		
Total	10,886	5,321	5,565	182	158	439	486	161	237	106	194	320	315	104	114	116	125	110	190	127	205

NEW YORK.
SEX AND AGE—SEPT. 14 TO NOV. 16, 1918, INCL.

[illegible]

BUREAU OF RECORDS

CITY OF NEW YORK.
INFLUENZA AND PNEUMONIAS DEATHS BY SEX, COLOR AND AGES, SEPT. 14 TO NOV. 16, 1918, INC.

	Total.			White.			Negro.			Chinese.			Japanese and Others.		
	Males	Females	Both Sexes	Males	Females	Both Sexes	Males	Females	Both Sexes	Males	Females	Both Sexes	Males	Females	Both Sexes
Under 1 year.....	182	158	340	174	155	329	8	3	11	.....	.....	.....	.....	.....	.....
1 to 4 years, incl.....	380	283	663	339	266	605	21	17	38	.....	.....	.....	.....	.....	.....
5 to 9 years, incl.....	439	493	932	428	475	903	11	11	22	.....	.....	.....	.....	.....	.....
10 to 14 years, incl.....	584	609	1,193	569	579	1,148	15	30	45	.....	.....	.....	.....	.....	.....
15 to 19 years, incl.....	151	207	358	159	233	392	2	3	5	.....	.....	.....	.....	.....	.....
20 years.....	106	194	300	102	190	292	3	3	6	.....	.....	.....	.....	.....	.....
21 years.....	104	165	269	104	163	267	.....	2	2	.....	.....	.....	.....	.....	.....
22 years.....	320	315	635	306	306	614	11	8	19	.....	.....	.....	.....	.....	.....
23 years.....	219	240	459	210	230	440	9	10	19	.....	.....	.....	.....	.....	.....
24 years.....	104	114	218	99	109	208	4	5	9	.....	.....	.....	.....	.....	.....
25 years.....	91	78	169	90	72	162	1	3	4	.....	.....	.....	.....	.....	.....
26 years.....	116	125	241	111	122	233	3	3	6	.....	.....	.....	.....	.....	.....
27 years.....	96	93	189	92	91	183	3	2	5	.....	.....	.....	.....	.....	.....
28 years.....	110	190	300	104	185	289	5	5	10	.....	.....	.....	.....	.....	.....
29 years.....	88	142	230	83	133	216	3	9	12	.....	.....	.....	.....	.....	.....
30 years.....	127	205	332	120	201	321	3	4	7	.....	.....	.....	.....	.....	.....
31 years.....	100	139	239	94	134	228	5	5	10	.....	.....	.....	.....	.....	.....
32 years.....	159	234	393	154	230	384	4	4	8	.....	.....	.....	.....	.....	.....
33 years.....	120	177	297	113	165	278	7	7	14	.....	.....	.....	.....	.....	.....
34 years.....	121	237	422	173	231	404	8	5	13	.....	.....	.....	.....	.....	.....
35 years.....	187	308	495	189	254	443	4	2	6	.....	.....	.....	.....	.....	.....
36 years.....	195	256	451	189	254	443	8	2	10	.....	.....	.....	.....	.....	.....
37 years.....	140	189	329	134	183	317	5	5	10	.....	.....	.....	.....	.....	.....
38 years.....	216	243	459	206	237	443	2	2	4	.....	.....	.....	.....	.....	.....
39 years.....	141	206	347	135	200	335	5	5	10	.....	.....	.....	.....	.....	.....
40 years.....	280	291	571	273	285	558	5	6	11	.....	.....	.....	.....	.....	.....
41 years.....	223	231	454	209	210	419	12	9	21	.....	.....	.....	.....	.....	.....
42 years.....	245	231	476	237	229	466	2	2	4	.....	.....	.....	.....	.....	.....
43 years.....	180	161	341	176	155	331	4	6	10	.....	.....	.....	.....	.....	.....
44 years.....	221	240	461	213	234	447	5	5	10	.....	.....	.....	.....	.....	.....
45 years.....	173	182	355	167	172	339	6	3	9	.....	.....	.....	.....	.....	.....
46 years.....	168	148	316	159	147	306	6	10	16	.....	.....	.....	.....	.....	.....
47 years.....	126	98	224	122	92	214	3	6	9	.....	.....	.....	.....	.....	.....
48 years.....	477	1,051	1,528	463	1,020	1,483	11	14	25	.....	.....	.....	.....	.....	.....
49 years.....	574	839	1,413	557	843	1,399	3	8	11	.....	.....	.....	.....	.....	.....
50 years.....	488	351	839	463	343	806	20	20	40	.....	.....	.....	.....	.....	.....
51 years.....	865	659	1,524	826	638	1,464	23	21	44	.....	.....	.....	.....	.....	.....
52 years.....	723	493	1,216	696	477	1,173	37	16	53	.....	.....	.....	.....	.....	.....
53 years.....	343	293	636	333	287	620	7	6	13	.....	.....	.....	.....	.....	.....
54 years.....	340	249	589	325	243	568	12	6	18	.....	.....	.....	.....	.....	.....
55 years.....	136	136	272	131	135	266	3	3	6	.....	.....	.....	.....	.....	.....
56 years.....	168	172	340	166	169	335	1	3	4	.....	.....	.....	.....	.....	.....
57 years.....	69	96	165	66	95	161	.....	1	1	.....	.....	.....	.....	.....	.....
58 years.....	141	196	337	139	194	333	2	2	4	.....	.....	.....	.....	.....	.....
59 years.....	5,321	5,565	10,886	5,125	5,441	10,566	129	121	250	.....	.....	.....	.....	.....	.....
60 years.....	4,896	4,836	9,732	4,574	4,699	9,273	178	176	354	.....	.....	.....	.....	.....	.....
Total—all ages.....	182	158	340	174	155	329	8	3	11	.....	.....	.....	.....	.....	.....

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

DEATH RATES PER 1,000 POPULATION, SIX EASTERN CITIES, INFLUENZA AND PNEUMONIA, DURING SEVEN WEEKS OF EPIDEMIC OF 1918.

CITY.	First Week.		Second Week.		Third Week.		Fourth Week.		Fifth Week.		Sixth Week.		Seventh Week.		Total.	
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
Boston.....	46	3	265	13	775	53	1,214	82	1,027	70	589	40	226	15	4,142	40
Buffalo.....	48	5	180	20	531	58	725	80	455	50	168	18	80	9	2,187	34
Baltimore.....	19	2	117	10	563	49	1,357	119	1,073	94	397	35	147	13	3,673	46
Philadelphia....	76	2	706	21	2,635	79	4,597	138	3,021	91	1,203	36	375	11	12,613	54
New York.....	723	7	2,121	19	4,227	38	5,222	48	4,402	40	2,277	21	1,050	10	20,082	26
Newark, N. J. .	53	7	189	24	396	49	431	54	376	47	177	23	111	14	1,733	31

DEATH RATES PER 1,000 POPULATION, SIX WESTERN CITIES, INFLUENZA AND PNEUMONIA, DURING SEVEN WEEKS OF EPIDEMIC OF 1918.

CITY	First Week.		Second Week.		Third Week.		Fourth Week.		Fifth Week.		Sixth Week.		Seventh Week.		Total.	
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
Cleveland.....	40	3	158	12	453	34	682	52	524	40	351	26	240	18	2,448	26
Cincinnati.....	18	2	67	8	192	24	281	35	161	20	104	13	97	12	920	17
St. Louis.....	86	6	186	13	233	16	254	17	229	16	228	16	180	12	1,396	14
Minneapolis....	18	2	48	7	99	14	160	21	120	17	95	13	93	13	618	12
St. Paul.....	61	13	75	15	57	12	102	21	106	23	135	28	78	16	617	18
Chicago.....	417	9	1,047	21	2,110	43	2,367	48	1,470	30	738	15	390	8	8,539	25

BUREAU OF RECORDS

Measles.

There were 790 deaths reported, with a death rate of 13 per 100,000 population. Compared with death rates for the four preceding quinquennials, during which rates beginning with the quinquennium of 1898 to 1902, were 19, 19, 17, and 11, that of 1918, though a little above the immediately preceding quinquennium, was considerably below those of the first three.

Scarlet Fever.

The rate for quinquennium 1898 to 1902 was 22 per 100,000. For following quinquennials rates were 17, 19 and 5, the rate for 1918 being the lowest on record since middle of the nineteenth century.

Diphtheria and Group.

The death rate during decennium of 1868 to 1877, was 154 per 100,000 population. The rate rose in next decennium to 170. In decennium 1888 to 1897 it fell to 130, and in that of 1898 to 1907 to 53. In decennium from 1908 to 1917 it had reached the extremely low level of 28 per 100,000, and in the year just passed, the rate was 21, which is lowest single annual rate during fifty years, with the exception of 1916 and 1917, when it was 18 and 20, respectively.

Whooping Cough.

During quinquennium from 1898 to 1902, the rate was 16 and in following quinquennium it fell to 8, 7 and 7. During 1918, it was 11, which was a considerable increase over figures of previous fifteen years.

Cerebro-Spinal Meningitis.

The rate during 1918 was 4 per 100,000 population, as compared with rate of 9 during quinquennium of 1898 to 1902, 23 in 1903 to 1907, 6 in 1908 to 1912 and 3 in 1913 to 1917.

Pulmonary Tuberculosis.

The death rate during quinquennium 1898 to 1902 was 230 per 100,000 population. This rate has fallen continuously since that period, the rate in next quinquennium being 213 followed by rates of 183 and 159. The percentage of decrease from first quinquennium to the second was 7 per cent.; from second to the third 13 per cent.; from third to the fourth, 13 per cent. The rate for the year, 1918, is the lowest rate on record.

Diarrhoeal Diseases Among Those Under Five Years of Age.

During first quinquennium 1898 to 1902, 15 out of every 1,000 children at this age group died from this cause. In next quinquennium 13 died, in the next 10, and in the next 6, the rate for the year being 4 out of every 1,000.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

Cancer.

The rate during first quinquennium was 65 out of every 100,000 population. It rose in next quinquennium to 71, then to 77 and then to 83. For 1918 it was 83. Undoubtedly a considerable portion of this increase is due to more accurate certification.

Infant Mortality.

12,657 deaths of children under one year of age were reported, the rate being 91.7 per 1,000 births reported. 5,118 of these occurred under one month of age; 1,091 between one and 2 months; 849 between 2 and 3 months, that is to say almost 56 per cent. of entire number of deaths of children under one year of age occurred before the completion of the third month of life. If we go back to 1910, during which our registration of births became practically complete, we find the following decreases in rates by boroughs:

In Manhattan the rate was 134.9 per 1,000 births, in 1910; in 1918 it was 96.1—a decrease of 29 per cent. In The Bronx, the rate decreased from 96.4 to 76.3—a decrease of 20 per cent. In Brooklyn there was a decrease from 118.5 to 90.4—a decrease of 24 per cent. In Queens the rate fell from 122.1 to 92.9—a decrease of 24 per cent. In Richmond the rate fell from 141.6 to 105.1—a decrease of 26 per cent. The rate for entire city in 1910 was 125.6; in 1918 it was 91.7—a decrease of 27 per cent.

BUREAU OF RECORDS

TABLE No. I.
REPORT OF BUREAU OF RECORDS, 1918.

	Manhattan	The Bronx	Brooklyn	Queens	Richmond	City of New York
Deaths.....	44,158	11,320	32,944	6,997	2,700	98,119
Death rate.....	16.16	18.19	16.28	17.81	26.54	16.71
*Corrected death rate.....	18.89	17.44	17.00	18.00	23.33	.....

*Corrected by redistributing deaths according to borough or residence.*cc*

	Esti- mated Popula- tion.....	Certificate Received and Tabulated.				Rate per 1,000.				Transit and Dis- interment Permits Issued.	Medical Examin- ers. Cases.	Searches Made.	Trans- cripts Issued.
		Marriages	Births.	Deaths.	Still- births.	Marriages	Births.	Deaths.	Still- births.				
Manhattan.....	2,731,731	36,367	59,434	44,158	3,135	13.31	21.76	16.16	1.15	2,251	5,604	113,353	63,390
The Bronx.....	623,555	3,973	15,943	11,320	686	6.38	27.06	18.19	1.10	398	873	19,897	14,006
Brooklyn.....	2,023,170	13,592	49,568	32,944	2,422	6.72	24.49	16.28	1.20	1,512	3,432	86,003	59,338
Queens.....	392,966	2,134	9,518	6,997	438	5.43	24.24	17.81	1.11	2,119	616	9,239	6,996
Richmond.....	101,721	667	2,683	2,700	112	6.56	26.37	26.54	1.10	87	193	3,825	2,068
City of New York.....	5,873,143	56,733	138,046	98,119	6,793	9.66	23.51	16.71	1.16	6,367	10,717	232,307	124,768

	Manhattan.	The Bronx.	Brooklyn.	Queens.	Richmond.	City of New York.
Deaths in institutions.....	21,556	5,180	10,263	1,867	1,378	40,214
Deaths in asylums.....	19,673	4,417	13,982	1,605	1,25	39,802
Deaths in dwellings.....	1,253	1,566	7,874	3,332	1,075	15,100
Deaths in hotels.....	701	18	153	37	18	927
Deaths in streets, rivers, etc.....	975	169	672	156	104	2,076

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

TABLE No. 2
MORTALITY FROM THE PRINCIPAL CAUSES
WITH AGES OF DECEDENTS, BIRTHS, MARRIAGES AND STILLBIRTHS FOR YEAR 1918

	12,629	10,889	12,436	12,057	11,003	11,186	12,567	12,089	10,826	11,941	10,301	10,092	128,046
Births.....	4,988	4,902	5,000	4,967	5,098	6,538	4,431	3,517	4,357	5,176	4,370	5,000	56,733
Marriages.....	563	527	581	628	518	521	505	476	434	914	593	513	6,793
Stillbirths.....													
CITY OF NEW YORK													
Cause of Death	Jan.	Feb.	Mar.	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Total
Total, all causes.....	7,960	6,889	9,114	7,809	6,101	5,235	5,234	5,084	5,013	21,548	10,562	7,570	96,119
1. Typhoid Fever.....	6	8	13	6	10	13	30	30	32	28	10	10	196
2. Typhus Fever.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3. Malarial Fevers.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4. Small Pox.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5. Measles.....	85	98	174	161	121	79	33	16	10	7	1	5	790
6. Scarlet Fever.....	30	21	16	26	25	20	13	5	1	9	4	17	177
7. Whooping Cough.....	177	64	125	114	170	49	45	39	19	47	15	11	865
8. Diphtheria and Croup.....	112	101	138	160	121	106	80	52	46	120	90	119	1,245
9. Influenza.....	72	52	133	106	36	7	6	5	114	8,384	2,731	916	12,562
10. Poliomyelitis.....	.....	1	4	3	1	4	4	6	3	1	1	.....	28
11. Cholera Nostris.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12. Other Epidemic Diseases.....	33	30	37	35	18	17	11	2	6	12	12	.....	233
13. Tuberculous Pulmonitis.....	842	771	1,081	860	783	643	592	546	546	826	711	635	8,779
14. Tuberculous Meningitis.....	67	46	51	38	32	47	36	31	31	44	32	47	769
15. Other Forms of Tuberculosis.....	67	46	51	38	32	47	36	31	31	44	32	47	537
16. Cancer, Malignant Tumors.....	435	355	448	416	424	405	427	413	388	403	385	438	4,932
17. Meningitis, Simple.....	31	47	63	50	44	25	26	29	30	28	18	37	428
(of which)													
17a. Cerebro-Spinal Meningitis.....	11	28	46	33	36	16	17	17	19	14	8	17	262
18. Apoplexy and Softening of Brain.....	86	74	79	139	78	65	68	82	54	110	123	96	1,054
19. Organic Heart Disease.....	1,293	1,042	1,224	1,113	943	856	884	709	763	1,228	1,051	1,007	12,103
20. Acute Bronchitis.....	118	99	99	70	61	27	92	12	28	98	64	62	760
21. Chronic Bronchitis.....	16	13	12	13	11	8	16	10	14	32	14	11	170
22. Pneumonia (excluding Broncho-Pneumonia).....	945	859	1,737	1,214	568	277	223	179	331	4,842	1,571	895	13,641
22a. Broncho-Pneumonia.....	526	445	1,557	1,032	288	168	131	134	139	2,345	1,098	624	6,987
23. Other Respiratory Diseases.....	62	43	71	73	67	44	37	29	26	61	48	52	613
24. Diseases of Stomach (Cancer excepted).....	46	35	30	32	42	34	36	21	34	27	24	43	401
25. Diseases of Intestine (under 5 years).....	126	112	108	105	101	143	241	570	397	269	155	138	2,555
26. Diarrhoea and Typhitis.....	51	46	61	75	46	45	47	53	50	36	43	60	594
27. Appendicitis.....	69	49	72	75	39	55	35	50	48	55	51	47	658
28. Hernia and Intestinal Obstruction.....	44	33	45	46	27	39	33	31	32	40	35	28	433
28a. Carcinoma of the Liver.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

BUREAU OF RECORDS

TABLE No. 2—Continued

Cause of Death	Jan.	Feb.	Mar.	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	Total
29. Bright's Disease and Acute Nephritis...	655	554	562	449	443	382	375	275	317	468	342	447	5,269
30. Diseases of Women (not Cancerous)...	23	30	26	22	22	20	26	26	21	18	19	26	279
31. Puerperal Septicemia.....	20	22	26	24	17	18	17	15	9	17	6	12	202
32. Other Puerperal Diseases.....	35	42	51	40	37	31	42	37	32	45	32	38	462
33. Cancer of the Uterus.....	392	292	361	381	312	276	279	325	304	615	440	357	4,224
34. Cancer of the Breast.....	21	13	23	20	17	21	29	15	16	43	34	28	280
35. Old Age.....	454	348	371	318	352	359	357	446	349	342	479	362	4,537
36. Violent Deaths (Suicide Excepted).....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
a. Suicides.....	439	332	355	302	339	332	318	365	317	323	446	336	36
b. Other Accidents.....	15	16	16	16	13	24	24	14	31	19	33	26	4,204
c. Homicides.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	247
37. Suicides.....	70	62	72	57	59	44	53	56	55	69	64	63	724
38. Other Causes.....	1,092	985	1,173	955	826	819	801	733	701	930	810	914	10,732
39. Causes not Known or Ill-defined.....	1	7	5	8	5	9	6	13	13	2	3	5	77
Under 1 year.....	1,210	1,018	1,246	1,128	878	773	839	1,083	876	1,584	1,132	990	12,657
1 year, under 2 years.....	313	320	506	525	363	223	217	200	166	806	461	202	4,302
Total, under 5 years.....	1,796	1,591	2,123	2,060	1,518	1,233	1,261	1,463	1,179	3,420	2,045	1,230	21,019
55 years and over.....	1,810	1,451	1,497	1,417	1,138	1,042	1,062	921	875	1,510	1,281	1,370	15,374
70 years and over.....	1,254	1,013	1,041	977	803	685	729	615	591	1,005	857	944	10,504
Males.....	4,428	3,832	5,192	4,203	3,320	2,939	2,836	2,556	2,689	4,073	5,478	4,003	52,528
Females.....	3,532	3,057	3,922	3,006	2,781	2,396	2,398	2,228	2,324	10,762	5,084	3,567	45,591
Colored.....	257	281	408	292	257	216	238	238	201	674	370	247	3,674
Chinese.....	6	8	14	9	7	7	5	6	5	63	20	21	171
Institutions.....	3,167	2,816	3,929	3,307	2,711	2,364	2,411	2,319	2,240	7,828	3,955	3,167	40,214
Tenements.....	3,208	2,697	3,617	3,080	2,231	1,792	1,849	1,770	1,337	10,192	4,592	2,928	39,802
Dwellings.....	1,398	1,154	1,326	1,180	923	834	771	738	744	3,191	1,645	1,206	15,100
Hotels, etc.....	63	81	97	79	54	53	30	30	53	157	91	121	927
Others.....	134	141	145	154	182	192	164	218	189	180	279	148	2,076
Death Rate.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Non-residents.....	207	115	160	155	143	188	116	135	181	916	317	340	2,928

TABLE No. 3.
BIRTHS REPORTED.
BOROUGH OF MANHATTAN, 1918.

MONTH.	Total.	White.		Colored.		Chinese.		Japanese.		Native Parents.		Foreign Parents.		Mixed Parentage.		Unknown Parentage.		At-tended by Mid-wives.	At-tended by Physi-cians.	At-tended by Ille-gi-mate.	Ap-par-ently Twins	Trip-lets.
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.					
January.....	5,514	2,705	2,598	103	105	2	1	.....	.....	625	623	1,830	1,743	340	325	15	13	1,656	3,853	5	90	50
February.....	4,804	2,377	2,232	91	101	.....	.....	.....	.....	576	533	1,601	1,509	286	288	5	6	1,434	3,369	1	91	48
March.....	5,450	2,725	2,489	111	122	.....	.....	.....	.....	669	628	1,803	1,649	352	328	13	8	1,605	3,843	2	108	48
April.....	5,084	2,505	2,386	82	102	3	4	.....	.....	641	671	1,623	1,508	315	308	12	6	1,417	3,662	5	92	36
May.....	4,747	2,409	2,157	91	83	.....	.....	.....	.....	650	566	1,331	1,229	508	440	14	9	1,276	3,464	7	101	33
June.....	4,945	2,352	2,349	126	110	.....	.....	.....	.....	616	641	1,380	1,365	475	450	9	9	1,321	3,623	1	90	47
July.....	5,373	2,611	2,570	94	93	.....	.....	.....	.....	695	730	1,548	1,430	458	501	6	5	1,485	3,888	.....	83	30
August.....	4,939	2,370	2,398	91	76	.....	.....	.....	.....	602	590	1,416	1,392	467	451	6	15	1,454	3,484	.....	68	49
September.....	4,672	2,283	2,192	103	80	.....	.....	.....	.....	604	547	1,311	1,265	476	457	6	6	1,276	3,395	1	83	44
October.....	5,357	2,629	2,508	114	104	.....	.....	.....	.....	680	679	1,541	1,451	513	473	11	9	1,576	3,777	4	78	44
November.....	4,268	2,133	1,946	89	92	.....	.....	.....	.....	559	530	1,206	1,093	452	407	10	11	1,255	3,013	.....	55	30
December.....	4,281	2,097	1,996	92	89	.....	.....	.....	.....	531	503	1,182	1,162	460	402	18	23	1,222	3,057	.....	81	36
Total.....	59,434	29,235	27,703	1,187	1,157	11	16	14	21	7,448	7,241	17,772	16,796	5,102	4,830	125	120	16,977	42,428	29	1,020	495
																						3

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TABLE No. 4
MARRIAGES REPORTED DURING 1918
BOROUGH OF MANHATTAN

	Male	Females	
White.....	34,134	34,178	.....
Black.....	2,218	2,181	.....
Japanese.....	15	8	.....
Single.....	33,389	33,241	.....
Widowed.....	2,442	2,469	.....
Divorced.....	536	657	.....
Native.....	16,960	18,561	.....
Foreign.....	19,407	17,806	.....
Religious Marriages:			
Catholic.....	.....	.....	7,532
Protestant.....	.....	.....	5,867
Jewish.....	.....	.....	5,771
Ethical Culture.....	16
Civil Marriages:			
Aldermanic.....	17,128
Judicial.....	53
Total Marriages.....	36,367

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TABLE No. 5.
BIRTHS REPORTED AND DEATHS UNDER ONE YEAR OF AGE, 1910-1918.
DEATHS RATE PER 1,000 BIRTHS REPORTED.

YEAR.	MANHATTAN.			THE BRONX.			BROOKLYN.			QUEENS.			RICHMOND.			CITY OF NEW YORK		
	Births.	Deaths 1 Year.	D. R.	Births.	Deaths 1 Year.	D. R.	Births.	Deaths 1 Year.	D. R.	Births.	Deaths 1 Year.	D. R.	Births.	Deaths 1 Year.	D. R.	Births.	Deaths 1 Year.	D. R.
1910.....	66,357	8,954	134.9	10,905	1,051	96.4	42,708	5,059	118.5	7,119	869	122.1	1,991	282	141.6	129,080	16,215	125.6
1911.....	66,527	8,223	123.6	12,464	1,095	87.9	45,099	4,628	101.3	7,571	830	109.6	2,283	277	121.3	134,544	15,053	111.9
1912.....	66,249	7,675	123.3	13,676	1,121	82.0	45,454	4,453	98.0	8,002	784	98.0	2,274	256	112.6	125,655	14,289	105.3
1913.....	64,200	7,123	110.9	14,679	1,166	79.4	45,888	4,383	95.5	8,086	866	107.1	2,281	242	106.1	135,134	13,780	102.0
1914.....	65,412	6,790	103.8	15,704	1,139	72.5	48,241	4,287	88.9	8,937	877	98.1	2,353	219	93.1	140,647	13,312	94.6
1915.....	65,218	6,327	106.2	16,001	1,269	79.3	48,482	4,476	92.3	9,219	946	102.6	2,336	248	106.2	141,256	13,866	98.2
1916.....	61,030	6,235	102.2	16,144	1,197	74.1	48,590	4,272	87.9	9,453	855	93.6	2,447	229	93.6	137,664	12,818	93.1
1917.....	61,612	5,789	94.0	16,902	1,342	79.4	50,468	4,286	84.9	1,005	820	91.5	2,532	231	91.2	141,564	12,568	88.8
1918.....	59,434	5,710	96.1	16,843	1,302	77.3	49,568	4,479	90.4	9,518	884	92.9	2,683	282	105.1	138,046	12,657	91.7

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TABLE No. 6
DEATHS UNDER ONE YEAR OF AGE AND DEATHS RATES PER 1,000 BIRTHS
REPORTED DISEASES GROUPS 1918-1917

		Manhattan		The Bronx		Brooklyn		Queens		Richmond		City	
		1918	1917	1918	1917	1918	1917	1918	1917	1918	1917	1918	1917
Con- tagious	Deaths Rate..	302 5.1	303 4.9	60 3.6	56 3.3	163 3.3	130	60 6.8	31 3.1	11 4.1	6 2.4	596 4.3	526 3.7
Re- spiratory	Deaths Rate..	1,400 23.6	1,274 20.7	249 14.8	282 16.7	1,121 22.6	976	182 19.1	169 16.8	41 15.3	40 15.8	2,993 21.7	2,741 19.4
Diarrhoeal	Deaths Rate..	931 15.7	1,314 21.3	152 9.0	203 12.0	780 15.7	937	124 13.0	184 18.3	45 16.8	59 23.3	2,032 14.7	2,697 19.1
Congenital	Deaths Rate..	2,298 38.7	2,249 36.5	661 39.2	638 37.8	1,837 37.1	1,753	408 42.9	422 42.0	140 52.2	102 40.3	5,344 38.7	5,166 36.5
Other Causes	Deaths Rate..	779 13.1	649 10.5	180 10.7	163 9.6	578 11.7	488	105 11.0	114 11.3	45 16.8	24 9.5	1,687 12.2	1,438 10.2
Total All Causes	Deaths Rate..	5,910 96.1	5,789 94.0	1,302 77.3	1,342 79.4	4,479 90.4	4,286 84.9	884 92.9	920 91.5	282 105.1	231 91.2	12,657 91.7	12,668 88.8

TABLE 7
DEATHS FROM INFECTIOUS AND CERTAIN OTHER PREVENTABLE DISEASES
FOR YEAR 1918

	Manhattan	Bronx	Brooklyn	Queens	Richmond
Area in acres.....	13,226.0	26,522.8	38,977.8	81,720.0	36,600.0
Population U. S. Census 1910.....	2,331,491	430,942	1,634,508	284,041	85,969
Number of persons to acre.....	176.3	16.2	41.9	3.5	2.3
Typhoid fever.....	84	16	81	9	6
Small pox.....	.....	.....	.....	.....	.....
Measles.....	370	57	310	44	9
Scarlet fever.....	93	10	57	16	1
Diphtheria and croup.....	598	139	395	94	19
Pulmonary tuberculosis.....	4,321	967	2,677	626	188
Lobar pneumonia.....	5,870	1,642	4,877	868	384
Broncho pneumonia.....	3,161	709	2,599	443	85
Diarrhoeal diseases.....	1,233	214	1,077	180	63
All causes.....	43,418	10,859	34,404	7,073	2,373
Death of children under 5 years.....	9,403	2,069	7,646	1,445	456

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TABLE No. 8.
DEATHS FROM ALL CAUSES ACCORDING TO NATIVITY OF DECEASED
AND PARENTS OF DECEASED—1918.

Country.	Nativity of Deceased, City of New York.	Nativity of Parent of Deceased City of New York.
United States.....	57,537	21,158
Ireland.....	7,742	14,715
Germany.....	6,243	10,038
Italy.....	6,589	13,914
Russia.....	6,937	10,362
England.....	1,621	1,792
Austria-Hungary.....	3,997	5,951
Scotland.....	522	691
British America.....	573	429
Switzerland.....	225	219
France.....	508	550
Bohemia.....	243	353
Roumania.....	493	585
Poland.....	509	927
Syria.....	59	69
Sweden.....	679	847
Norway.....	569	730
Denmark.....	175	218
Finland.....	204	255
Holland.....	142	168
Cuba.....	88	79
Other West Indies.....	731	1,034
Belgium.....	59	51
Spain.....	219	279
Greece.....	272	388
China.....	162	134
Australia.....	15	17
Other foreign.....	642	688
Unknown.....	364	3,273
Mixed nationalities.....	8,205
Total.....	98,119	98,119

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TABLE No. 9.
"DEATHS BY SUICIDE—1918.

	Austria-Hungary		Bohemia		England		France		Germany		Ireland		Italy		Russia		Other Foreign.		United States		Un- known.		Total by Sexes.		Total Both Sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Cuts and stabs.....	5	1	..	..	1	..	..	..	2	1	1	..	1	..	..	..	6	..	16	4	2	..	34	7	41
Drowning.....	..	..	..	..	..	..	..	..	2	..	1	..	1	..	..	..	..	..	14	3	1	..	24	4	28
Gunshot.....	4	..	..	..	1	..	2	..	9	..	1	..	8	..	1	..	4	..	54	6	2	..	91	8	99
Hanging.....	..	..	..	..	..	..	..	..	16	8	2	4	2	..	11	..	3	..	21	7	5	..	66	19	85
Leaps.....	5	9	..	..	..	..	..	..	3	6	3	..	..	..	..	..	..	..	17	1	..	..	46	56	102
Railroads.....	..	..	..	..	..	..	..	..	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Arsenic.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bichloride of Mercury.....	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Carbolic acid.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cyanide of potassium.....	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Opium.....	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oxalic Acid.....	..	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other poisons.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other methods.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Illuminating gas.....	8	5	3	..	5	1	1	1	48	15	8	3	7	1	19	9	22	6	64	70	7	2	11	1	306
Total by sexes.....	26	15	5	1	9	1	6	2	85	36	17	9	25	5	47	27	53	16	300	118	19	2	492	232	724
Total both sexes.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

*The 000 suicides occurred in Boroughs as follows: Manhattan, 379; The Bronx, 63; Brooklyn, 216; Queens, 52; Richmond, 14.

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TABLE No. 10
DEATHS IN INSTITUTIONS, YEAR 1918

MANHATTAN			
Babies Hospital.....	352	New York Infirmary for Women and Children.....	80
Bellevue Hospital.....	4,678	New York Nursery and Child's Hospital.....	336
Beth Israel Hospital.....	315	New York Polyclinic Hospital.....	188
Central and Neurological Hospital.....	962	Park Hospital.....	13
City Hospital.....	673	Post-Graduate Hospital.....	605
Columbus Hospital.....	87	Presbyterian Hospital.....	436
Flower Hospital.....	213	Reception Hospital.....	.....
Foundling Hospital.....	425	Roosevelt Hospital.....	466
French Hospital.....	144	St. Francis Home.....	56
German Hospital.....	448	St. Gregory's Hospital.....	35
Gouverneur Hospital.....	636	St. Luke's Hospital.....	457
Hahnemann Hospital.....	130	St. Mark's Hospital.....	111
Har Moriah Hospital.....	15	St. Mary's Hospital.....	43
Harlem Hospital.....	1,645	St. Vincent's Hospital.....	452
Home for Aged (Little Sisters of Poor).....	84	St. Rosa's Home.....	136
House of Relief.....	49	Skin and Cancer Hospital.....	10
Jewish Maternity Hospital.....	34	Sloane Hospital for Women.....	79
Knickerbocker Hospital.....	287	Sydenham Hospital.....	57
Lying-in-Hospital.....	193	Washington Heights Hospital.....	12
Manhattan Maternity Hospital.....	46	Willard Parker Hospital.....	828
Manhattan State Hospital.....	833	Women's Hospital.....	68
Metropolitan Hospital.....	1,668	Workhouse Hospital.....	32
Misericordia Hospital.....	123	Other Institutions.....	1,885
Mount Sinai Hospital.....	815		
New York Hospital.....	549	Total.....	21,556
New York City School and Hospital.....	28		
THE BRONX			
Fordham Hospital.....	858	St. Joseph's Hospital.....	781
Home for Incurables.....	62	Seton Hospital.....	427
House of Calvary.....	162	Base Hospital No. 1.....	111
Lebanon Hospital.....	354	Naval Hospital.....	79
Lincoln Hospital.....	1,047	Other Institutions.....	298
Montefiore Hospital.....	827		
Riverside Hospital.....	252	Total.....	5,150
St. Francis Hospital.....	392		
BROOKLYN			
Angel Guardian Home.....	6	Long Island State Hospital.....	54
Bethany Deaconess Hospital.....	13	Lutheran Hospital.....	37
Brooklyn Hospital.....	700	Methodist Episcopal Hospital.....	288
Bushwick Hospital.....	168	New York City Home for Aged and Infirm.....	72
Consumptive Home.....	78	Norwegian Hospital.....	278
Cumberland Street Hospital.....	93	Samaritan Hospital.....	39
Coney Island Hospital.....	317	St. Catherine's Hospital.....	422
Eastern District Hospital.....	46	St. Christopher's Hospital.....	128
German Evangelical Hospital.....	36	St. John's Hospital.....	180
German Hospital.....	264	St. Mary's Hospital.....	423
Greenpoint.....	366	St. Peter's Hospital.....	288
Home for Aged (Little Sisters of the Poor).....	123	Swedish Hospital.....	97
Infants' Hospital.....	9	Williamsburg Hospital.....	183
Jewish Hospital.....	485	Other Institutions.....	1,264
Kings County Hospital.....	2,708		
Kingston Avenue Hospital.....	538	Total.....	10,263
Long Island College Hospital.....	530		
QUEENS			
Flushing Hospital.....	250	St. Anthony's Hospital.....	632
Jamaica Hospital.....	101	Queensborough.....	102
St. John's Hospital.....	356	Other Institutions.....	153
St. Joseph's Hospital.....	97		
St. Mary's Hospital.....	176	Total.....	1,867
RICHMOND			
City Farm Colony.....	99	St. Vincent's Hospital.....	221
Marine Hospital.....	164	Other Institutions.....	178
Sailor's Snug Harbor.....	97		
Sea View Hospital.....	339	Total.....	1,378
Staten Island Hospital.....	280		
RECAPITULATIONS			
Borough of Manhattan.....	21,556	Borough of Richmond.....	1,378
Borough of The Bronx.....	5,150		
Borough of Brooklyn.....	10,263	City of New York.....	40,214
Borough of Queens.....	1,867		

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TABLE No. 11.
PULMONARY TUBERCULOSIS AND CANCER.
Deaths and Death Rates per 100,000 Population According to Nationalities of Deceased and Parents of Deceased—Death Rates Calculated on Returns of U. S. Census, 1910—
City of New York—Year 1918.

Country.	Nativity of Deceased.				Nativity of Parents of Deceased.			
	Pulmonary Tuberculosis.		Cancer.		Pulmonary Tuberculosis.		Cancer.	
	Deaths.	Death Rate.	Deaths.	Death Rate.	Deaths.	Death Rate.	Deaths.	Death Rate.
Austria-Hungary.....	426	180	286	107	519	130	303	76
China.....	25	542	5	108	24	520	4	87
Denmark.....	16	200	19	238	19	178	24	225
England.....	130	166	160	204	131	117	168	151
Finland.....	48	649	6	81	52	538	6	62
France.....	37	203	37	203	43	174	40	162
Germany.....	350	125	650	233	848	140	960	188
Greece.....	64	800	8	100	61	701	10	115
Ireland.....	838	332	596	236	2,014	358	962	176
Italy.....	644	189	298	87	865	163	315	59
Norway.....	79	355	30	135	85	269	33	105
Roumania.....	46	143	40	124	47	103	36	79
Russia.....	549	114	597	121	644	89	609	84
Scotland.....	49	212	45	195	62	175	38	164
Sweden.....	90	268	52	149	122	236	48	98
Switzerland.....	19	182	30	288	21	154	27	198
United States.....	4,932	174	1,921	68	1,780	175	784	77
Other foreign.....	414	715	1,168	273	.....	.....	.....	.....
Unknown.....	23	.....	4	.....	204	.....	65	.....
Other foreign and mixed foreign.....	.....	.....	.....	.....	707	347	232	139
Native mother or native father.....	531	142	178	47
Total.....	8,779	184	4,932	108	8,779	184	4,932	2103

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Age Groups.	Males.										Females.															
	Single.		Married.		Widowed.		Divorced.		Unknown.		Total.		Single.		Married.		Widowed.		Divorced.		Unknown.		Total.			
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.		
15 to 24 years...	704	136.2	64	113.4	5	981.5	1	...	776	124.6	647	123.2	256	173.8	13	673.6	...	...	...	...	...	...	...	...	917	142.5
25 to 34 years...	1,350	441.6	1,300	187.0	104	891.3	11	...	2,772	271.1	342	137.7	963	140.2	148	246.3	...	...	...	...	...	...	...	...	1,458	151.3
35 to 44 years...	563	1070.6	990	266.7	371	632.6	11	...	1,937	399.8	85	166.5	283	106.7	238	140.6	...	...	...	...	...	...	...	...	606	124.3
45 years and over																										
Total 15 yrs. and over...	2,617	298.1	2,354	209.4	480	624.0	23	...	5,484	262.3	1,074	141.1	1,502	135.8	397	175.3	4	62.4	4	...	2,981	142.2	...	...	2,981	142.2

Cancer																										
Age Groups.	Males.										Females.															
	Single.		Married.		Widowed.		Divorced.		Unknown.		Total.		Single.		Married.		Widowed.		Divorced.		Unknown.		Total.			
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.		
15 to 24 years...	16	3.1	6	10.6	...	...	...	...	...	...	22	3.8	17	3.5	5	3.4	...	...	...	...	...	...	...	...	22	3.4
25 to 34 years...	68	22.2	187	26.9	10	56.8	...	...	...	...	268	26.2	95	43.8	333	48.5	68	123.5	4	90.7	1	...	...	...	501	52.0
35 to 44 years...	217	412.7	1,280	339.4	346	590.0	3	...	1,830	377.7	257	500.4	978	368.7	1,000	590.6	10	658.0	2	...	2	...	...	...	2,247	460.8
45 yrs. and over																										
Total 15 yrs. and over...	301	34.3	1,453	129.2	356	462.8	4	...	2,120	101.4	369	48.5	1,316	119.1	1,068	471.7	14	218.4	3	...	2,770	132.1	...	...	2,770	132.1

All Causes Fifteen Years and Over		
12333	1404.6	209.63
1804.5	4,985	6480.0
101	2686.3	520
...	38892	1859.8
0.846	899.6	16387
1526.8	9,974	4405.0
82	1279.1	93
...	33882	1616.0

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TABLE No. 13
DEATHS FROM ACCIDENTS

	Borough of					City of New York
	Man- hattan	The Bronx	Brook- lyn	Queens	Rich- mond	
Fractures and contusions.....	97	16	49	10	10	183
Falls.....	492	73	296	47	14	922
Street vehicles.....	447	78	224	58	11	818
Railroads.....	105	34	161	41	11	352
Wounds.....	14	3	12	2	4	35
Burns and scalds.....	212	50	172	42	11	487
Conflagration.....	47	..	20	5	2	74
Drowning.....	156	27	157	33	40	413
Poison.....	28	9	27	8	2	74
Illuminating gas.....	254	33	204	27	7	525
Other gases.....	37	10	27	3	1	78
Criminal abortion.....	16	1	11	2	..	30
Sunstroke.....	34	7	40	4	1	86
Hydrophobia.....	..	..	..	..	..	..
Tetanus.....	10	6	4	1	1	22
Electric current.....	2	11	4	1	1	19
Foreign body in larynx.....	7	..	8	1	..	16
Other violence.....	79	14	68	8	10	179
Total.....	2,037	372	1,484	293	126	4,312

TABLE No. 14
DEATHS OF CHILDREN UNDER ONE YEAR OF AGE ACCORDING TO NATIVITY
OF PARENTS FOR 1918

Country	Man- hattan	The Bronx	Brook- lyn	Queens	Rich- mond	New York City
United States-----	1,612	468	1,675	459	137	4,351
Ireland.....	286	31	112	17	10	456
Germany.....	49	19	35	14	5	122
Italy.....	1,364	218	1,058	139	45	2,824
Russia.....	584	181	484	40	5	1,294
England.....	18	11	9	1	3	42
Austria-Hungary.....	454	79	153	32	14	732
Scotland.....	7	1	5	3	3	18
British America.....	3	..	6	..	..	9
Switzerland.....	4	2	..	..	..	6
France.....	7	1	..	1	..	9
Bohemia.....	17	..	..	2	..	19
Roumania.....	21	11	15	3	..	49
Poland.....	22	8	105	34	12	181
Syria.....	1	..	7	..	..	8
Sweden.....	12	..	20	3	1	36
Norway.....	3	1	40	..	6	50
Denmark.....	6	2	9	..	..	17
Finland.....	7	9	11	1	1	29
Holland.....	3	2	2	..	1	8
Cuba.....	2	..	1	..	..	3
Other West Indies.....	147	3	31	1	..	182
Belgium.....	1	..	..	..	..	1
Spain.....	22	..	6	..	..	28
Greece.....	52	3	13	1	..	69
China.....	1	..	..	..	..	1
Australia.....	..	..	..	1	..	1
Other Foreign.....	61	2	17	3	..	83
Mixed Foreign.....	216	65	107	19	2	410
Native Father (Foreign Mother).....	150	51	169	32	11	413
Native Mother (Foreign Father).....	272	116	311	74	22	796
Unknown.....	306	17	78	6	4	411
Total.....	5,710	1,302	4,479	884	283	12,657

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CITY OF NEW YORK

TABLE No. 15

DEATHS FROM ALL CAUSES AND DIARRHOEAL DISEASES UNDER ONE YEAR
OF AGE BY WEEKS YEAR 1918

		All Causes						Diarrhoeal Diseases							
		Under 1 m'th	1 m'th and under 2 m'ths	2 m'ths and under 3 m'ths	3 m'ths and under 6 m'ths	6 m'ths and under 9 m'ths	9 m'ths and under 12 m'ths	Total under 1 year	Under 1 m'th	1 m'th and under 2 m'ths	2 m'ths and under 3 m'ths	3 m'ths and under 6 m'ths	6 m'ths and under 9 m'ths	9 m'ths and under 12 m'ths	Total under 1 year
January	5.....	122	21	23	33	22	20	241	9	1	5	5	2	2	24
	12.....	148	30	34	54	25	28	319	4	3	5	10	2	...	24
	19.....	112	33	19	38	22	34	258	4	3	2	11	3	2	25
	26.....	127	23	18	46	27	18	259	3	3	3	9	2	1	21
February	2.....	109	23	18	36	28	37	251	4	3	6	9	3	2	27
	9.....	121	18	24	45	28	36	272	6	2	5	10	4	1	23
	16.....	97	22	17	39	33	32	240	3	4	1	7	1	1	16
	23.....	113	19	12	38	35	39	256	1	3	4	7	2	6	23
March	3.....	100	20	14	35	50	35	263	5	3	1	9	6	1	25
	9.....	94	30	19	28	40	38	249	5	4	2	5	5	1	22
	16.....	130	23	17	30	39	36	275	4	4	3	8	1	1	16
	23.....	113	22	16	35	55	46	287	2	2	1	4	5	2	16
	30.....	119	31	15	30	65	42	302	2	2	1	4	7	...	22
April	6.....	99	34	9	37	52	60	291	3	2	...	2	4	2	13
	13.....	136	22	11	31	50	37	287	5	5	3	4	4	2	23
	20.....	98	28	10	30	44	42	252	3	4	...	4	3	1	15
	27.....	93	27	17	37	34	31	229	3	7	...	12	3	2	27
May	4.....	95	26	20	30	29	31	231	5	5	2	3	4	1	20
	11.....	99	18	12	36	31	32	228	1	6	1	5	3	3	19
	18.....	76	19	18	29	29	31	202	3	5	1	2	2	1	14
	25.....	79	13	15	25	24	28	184	...	5	7	3	2	4	21
June	1.....	76	20	8	28	25	21	178	6	2	1	8	4	3	24
	8.....	96	9	17	28	25	26	201	1	5	6	5	4	4	25
	15.....	76	15	12	23	15	13	164	2	4	4	8	4	1	23
	22.....	72	17	11	21	24	14	159	1	2	1	6	4	2	16
	29.....	79	16	17	37	22	30	201	4	5	3	16	3	10	41
July	6.....	69	12	17	26	16	19	159	...	7	4	8	4	1	24
	13.....	76	12	9	37	25	18	167	4	4	4	10	12	4	38
	20.....	66	19	10	40	27	23	185	3	5	3	18	14	9	52
	27.....	72	14	9	39	43	38	215	3	4	6	18	29	25	88
August	3.....	83	19	20	44	39	32	237	8	7	9	24	30	15	93
	10.....	92	16	18	60	60	44	290	4	5	8	37	43	24	121
	17.....	70	22	20	58	38	37	245	7	9	12	36	25	15	104
	24.....	67	12	15	56	42	33	225	5	4	10	33	24	20	96
	31.....	73	18	27	42	37	27	224	3	12	17	21	22	18	93
Sept.	7.....	76	10	14	44	31	24	199	2	4	11	32	18	15	83
	14.....	81	28	11	48	34	27	229	11	9	5	27	22	15	89
	21.....	68	15	16	37	37	28	201	5	5	6	16	22	10	64
	28.....	67	11	21	42	28	22	191	8	6	12	24	11	11	72
October	5.....	76	22	15	36	27	23	199	3	9	9	18	13	7	59
	12.....	79	21	18	39	39	35	231	...	7	4	15	8	9	43
	19.....	137	15	17	56	68	67	360	3	3	5	16	11	8	46
	26.....	213	25	22	64	84	101	509	2	8	6	9	5	6	36
Nov.	2.....	155	38	22	62	84	86	447	4	5	7	6	12	7	41
	9.....	123	11	13	61	57	63	328	10	3	4	9	3	4	38
	16.....	105	29	19	39	43	40	275	5	5	2	11	7	8	38
	23.....	96	19	14	49	24	24	223	3	2	...	10	7	2	24
	30.....	90	31	16	34	18	12	201	3	3	1	8	1	2	18
Dec.	7.....	95	29	14	27	16	18	199	4	6	...	9	2	3	24
	14.....	99	26	9	28	25	23	210	5	12	2	11	6	2	38
	21.....	91	20	19	36	15	23	204	5	1	3	9	5	...	32
	28.....	89	13	13	25	16	19	175	1	3	2	6	1	3	16
Total, 52 weeks...		5,096	1,086	841	1,998	1,846	1,740	12,607	200	247	221	611	444	302	2,035
Total, Year 1918..		5,118	1,091	849	2,003	1,855	1,741	12,657	201	247	222	614	446	303	2,038

BUREAU OF RECORDS

TABLE No. 19

DEATHS OF NON-RESIDENTS FROM CERTAIN CAUSES FOR YEAR 1918

Cause of Death	
Typhoid Fever.....	9
Pul. Tuberculosis.....	203
Other Tuberculosis Diseases.....	38
Cancer.....	209
Alcoholism.....	3
Heart Diseases.....	212
Ac. Respir. Diseases.....	611
Diarrhoeal Diseases.....	43
Appendicitis.....	38
Cirrhosis of Liver.....	10
Diseases of Women.....	16
Congenital Debility.....	106
Accidents.....	115
Suicides.....	28
Other Causes.....	1,282
Total.....	2,923
Under 1 year.....	182
1 to 4 years.....	87
5 to 14 years.....	56
15 to 24 years.....	732
25 to 44 years.....	1,120
45 to 64 years.....	519
65 years and over.....	227
Total.....	2,923
Institutions.....	2,319
Hotels.....	122
Other Places.....	482
Total.....	2,923

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TABLE No. 17
SEARCHES MADE AND TRANSCRIPTS ISSUED—1918

	City of New York
Free searches of birth records for school and mercantile purposes, etc.....	94,151
Paid searches of birth records.....	66,910
Paid searches of marriage records.....	9,755
Paid searches of death records.....	61,491
Total free and paid searches.....	232,307
Transcripts:	
Paid transcripts of births issued.....	45,405
Paid transcripts of marriages issued.....	6,653
Paid transcripts of deaths issued.....	72,710
Total transcripts issued.....	124,768

TABLE No. 18
TOTAL DEATHS REPORTED FROM INFLUENZA AND PNEUMONIA
1917 AND 1918 ALL AGES AND UNDER ONE YEAR

	City	
	1917	1918
Total Influenza, All Ages.....	657	12,562
Influenza, under 1 year.....	50	430
Total Broncho Pneumonia.....	3,783	6,968
Broncho Pneumonia, under 1 year.....	1,520	1,759
Lobar Pneumonia, All Ages.....	7,268	13,641
Lobar Pneumonia, under 1 year.....	683	764

BUREAU OF RECORDS

TABLE No. 12.
DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918.

		General Diseases																					
		Typhoid Fever		Malarial Fever		Measles		Scarlet Fever		Whooping Cough		Diphtheria and Croup		Influenza		Cholera Nostras		Dysentery		Leprosy		Erysipelas	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Total by sexes.....		128	68	5	8	413	377	90	87	290	375	701	544	6,145	6,417	1	1	14	10	1	....	133	77
Under 1 year.....		....	....	....	....	98	93	2	....	149	166	50	38	240	190	....	....	4	2	....	....	53	42
1 year.....		....	....	....	....	182	171	14	21	84	116	160	121	215	240	....	....	....	....	....	....	4	3
2 years.....		....	....	....	....	59	48	13	13	23	41	115	90	131	148	....	....	....	....	....	....	....	1
3 years.....		....	....	....	....	25	33	14	15	15	19	105	66	92	101	....	....	....	....	....	....	....	2
4 years.....		....	....	....	....	13	12	13	10	8	11	57	52	66	73	....	....	....	....	....	....	....	....
Total under 5 years...		4	1	....	....	377	357	56	59	279	353	487	357	744	752	....	....	5	3	....	....	57	48
5 to 9 years.....		6	5	....	1	24	15	25	21	9	20	152	139	180	287	....	....	....	....	....	....	....	....
10 to 14 years.....		8	14	....	....	4	1	4	1	1	1	25	23	124	209	....	....	....	....	....	....	....	....
15 to 19 years.....		19	13	....	....	1	1	2	3	....	....	10	6	359	351	....	....	....	....	....	....	....	....
20 to 24 years.....		16	13	....	....	1	1	2	....	....	....	17	6	698	984	....	....	....	....	....	....	....	....
25 to 29 years.....		19	14	....	....	2	2	....	....	....	1	2	2	1,235	1,390	....	....	....	....	....	....	....	....
30 to 34 years.....		16	15	....	....	....	....	....	....	....	....	3	4	1,078	961	....	....	....	....	....	....	....	....
35 to 39 years.....		16	5	....	....	....	....	....	....	....	....	1	1	636	504	....	....	....	....	....	....	....	....
40 to 44 years.....		9	5	....	....	....	....	....	....	....	....	....	....	361	268	....	....	....	....	....	....	....	....
45 to 49 years.....		10	3	....	....	....	....	....	....	....	....	....	....	246	201	....	....	....	....	....	....	....	....
50 to 54 years.....		8	6	....	....	1	....	....	....	....	....	....	....	166	153	....	....	....	....	....	....	....	....
55 to 59 years.....		6	4	....	....	....	....	....	....	....	....	....	....	112	104	....	....	....	....	....	....	....	....
60 to 64 years.....		....	....	....	....	....	....	....	....	....	....	....	....	87	89	....	....	....	....	....	....	....	....
65 to 69 years.....		....	....	....	....	....	....	....	....	....	....	....	....	57	83	....	....	....	....	....	....	....	....
70 to 74 years.....		....	....	....	....	....	....	....	....	....	....	....	....	45	41	....	....	....	....	....	....	....	....
75 to 79 years.....		....	....	....	....	....	....	....	....	....	....	....	....	16	38	....	....	....	....	....	....	....	....
80 to 84 years.....		....	....	....	....	....	....	....	....	....	....	....	....	6	24	....	....	....	....	....	....	....	....
85 years and over.....		....	....	....	....	....	....	....	....	....	....	....	....	5	8	....	....	....	....	....	....	....	....
Colored.....		3	2	....	....	9	5	1	1	16	14	14	14	168	139	....	....	....	....	....	....	3	2
Chinese.....		....	....	....	....	....	....	....	....	....	....	....	....	42	....	....	....	....	....	....	....	....	....
Japanese.....		....	....	....	....	....	....	....	....	....	....	....	....	29	....	....	....	....	....	....	....	....	....
Indian.....		....	....	....	....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

General Diseases—Continued.																							
Other Epidemic Diseases.				Pyæmia, Septicæmia.		Malignant Pustule.		Tetanus, Trianus.		Mycoses.		Pellagra.		Tuberculosis of Lungs.		Acute Miliary Tuberculosis.		Tuberculosis Meningitis.		Abdominal Tuberculosis.		Pott's Disease.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Total by sexes.....																							
5		3	44	23	4	....	14	8	1	....	2	7	5,609	3,170	110	84	305	367	71	83	38	28	
1		1	4	3	...	...	3	1	...	...	...	...	...	29	13	12	8	80	71	5	5	...	...
1		1	1	1	...	...	...	...	...	...	...	...	...	16	15	6	3	71	81	3	4	...	...
1		1	...	1	...	...	...	...	...	...	...	...	...	10	12	3	3	44	34	1	4	...	...
1		1	...	1	...	...	...	...	...	...	...	...	...	10	7	3	3	31	23	4	1	...	...
3		3	6	6	...	...	3	1	...	...	...	...	...	67	55	23	17	257	233	14	15	7	2
6 to 9 years.....																							
...		...	2	2	...	...	2	2	...	...	...	...	...	22	23	2	5	40	48	4	5	...	...
1		...	...	...	...	...	1	...	...	...	...	...	...	36	111	13	14	13	24	7	4	...	...
1		1	2	1	...	...	...	...	...	...	...	...	...	252	344	30	11	19	13	8	7	...	...
...		...	4	2	...	...	...	...	...	...	...	...	...	523	573	3	11	12	12	3	5	...	...
...		...	3	3	1	...	...	...	...	...	...	...	...	640	479	3	11	12	10	3	9	...	...
...		...	2	1	...	...	...	...	...	...	...	...	...	1	1	9	4	16	11	6	10	...	...
...		...	3	3	1	...	...	...	...	...	...	...	...	2	2	13	4	18	7	6	9	...	...
...		...	3	3	...	...	...	...	...	...	...	...	...	714	297	13	3	8	3	6	4	...	...
...		...	3	1	...	...	...	...	...	...	...	...	...	732	263	5	3	8	3	6	3	...	...
...		...	3	1	...	...	...	...	...	...	...	...	...	658	210	9	5	1	4	3	3	...	...
...		...	6	1	...	...	...	...	...	...	...	...	...	502	143	8	6	1	4	3	3	...	...
...		...	3	3	...	...	...	...	...	...	...	...	...	353	95	4	1	5	3	3	1	...	...
...		...	2	1	...	...	...	...	...	...	...	...	...	228	78	...	...	...	2	2	6	...	...
...		...	2	1	...	...	...	...	...	...	...	...	...	112	35	...	...	...	...	...	...	...	...
...		...	...	...	...	...	...	...	...	...	...	...	...	55	28	...	...	...	...	...	...	...	...
...		...	1	...	...	...	...	...	...	...	...	...	...	31	12	...	...	...	...	...	...	...	...
...		...	3	...	...	...	...	...	...	...	...	...	...	6	4	...	...	...	...	...	...	...	...
...		...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	...	...	...
...	
...		...	3	...	...	...	...	...	...	...	...	...	...	317	235	10	13	21	18	8	10	3	2
...		...	...	...	...	...	...	...	...	...	...	...	...	25	...	3	...	2	...	1	...	...	...
...		...	...	...	...	...	...	...	...	...	...	...	...	6	1	...	...	...	...	...	...	...	...
...		...	...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	...	...	...	...	...	...
Colored.....		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chinese.....		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Japanese.....		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Indian.....		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

BUREAU OF RECORDS

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

General Diseases—Continued.

	White Swelling.		Tuberculosis of Other Organs.		General Tuberculosis.		Rachitis.		Syphilis.		Soft Chancre.		Gonococcal Infection.		Cancers, etc., of the Mouth.		Cancer of Stomach, Liver.		Cancer of Intestines, Rectum.		Cancer of Female Genital Organs.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Total by sexes.....	19	11	53	25	23	12	25	21	405	179	1	2	8	21	139	33	1,009	905	359	432	....	530
Under 1 year.....	1	1	3	4	3	4	8	13	105	85	....	....	1	....	....	....	1	1	....	....	....	....
1 year.....	....	2	1	....	4	....	7	4	4	4	....	....	....	....	....	....	....	....	....	....	....	....
2 years.....	....	....	2	....	3	....	6	2	3	....	....	....	....	....	....	....	....	....	....	....	....	....
3 years.....	....	1	1	1	1	....	3	1	3	....	....	....	....	....	....	....	....	....	....	....	....	....
4 years.....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Total under 5 years.....	1	4	7	5	11	4	24	21	114	89	....	....	1	....	1	1	4	1	1	2	....	....
5 to 9 years.....	3	....	2	3	1	....	....	....	1	1	....	....	....	....	1	....	....	....	2	....	....	....
10 to 14 years.....	....	1	4	2	1	....	....	....	1	2	....	....	....	....	....	....	....	....	....	....	....	....
15 to 19 years.....	4	2	6	1	3	2	1	....	11	7	....	1	....	....	....	....	....	....	....	....	....	....
20 to 24 years.....	3	1	5	1	2	....	....	....	23	11	....	....	....	....	....	....	....	....	....	....	....	....
25 to 29 years.....	1	....	....	....	....	....	....	....	46	13	....	....	....	....	....	....	....	....	....	....	....	....
30 to 34 years.....	....	....	1	5	....	....	....	....	45	14	....	....	....	....	....	....	....	....	....	....	....	....
35 to 39 years.....	....	....	1	2	....	....	....	....	35	16	....	....	....	....	....	....	....	....	....	....	....	....
40 to 44 years.....	....	....	6	....	....	....	....	....	40	7	....	....	....	....	....	....	....	....	....	....	....	....
45 to 49 years.....	....	....	2	....	....	....	....	....	46	....	....	....	....	....	....	....	....	....	....	....	....	....
50 to 54 years.....	....	....	3	2	....	....	....	....	35	....	....	....	....	....	....	....	....	....	....	....	....	....
55 to 59 years.....	1	....	3	2	....	....	....	....	20	3	....	....	....	....	....	....	....	....	....	....	....	....
60 to 64 years.....	....	....	....	....	....	....	....	....	18	4	....	....	....	....	....	....	....	....	....	....	....	....
65 to 69 years.....	....	....	....	....	....	....	....	....	5	2	....	....	....	....	....	....	....	....	....	....	....	....
70 to 74 years.....	....	....	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	....	....	....	....	....
75 to 79 years.....	1	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
80 to 84 years.....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
85 years and over.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Colored.....	1	....	2	1	1	....	4	6	50	38	....	....	2	7	2	1	15	14	4	4	....	26
Chinese.....	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	....	....	....	....	....	....	1
Japanese.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Indian.....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

General Diseases—Continued.																							
Cancer of Breast.		Cancer of Skin.		Cancer of Other Organs.		Other Tumors (except of Female Genital Organs)		Acute Articular Rheumatism.		Chronic Rheumatism and Gout.		Scurvy.		Diabetes.		Exophthalmic Goitre.		Addison's Disease.		Leukaemia			
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
4	442	37	36	595	361	14	7	77	108	22	45	7	6	410	601	12	61	12	14	88	57		
...	...	...	...	5	1	1	...	1	1	1	...	1	1	3	...	...	...	...	...	4	...
1 year.	...	...	...	2	2	...	...	...	...	...	...	2	...	1	...	...	...	...	...	5	...
2 years.	...	...	...	1	1	...	...	...	...	...	...	...	...	1	2	...	...	...	...	1	...
3 years.	...	...	...	3	...	...	...	2	3	...	...	...	...	...	...	...	...	...	...	1	...
4 years.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
Total under 5 years.	...	1	...	11	7	1	...	5	15	1	2	4	2	...	...	...	...	...	...	14	...
5 to 9 years.	1	...	...	...	5	...	...	11	15	1	1	1	...	3	4	...	...	...	...	...	1
10 to 14 years.	...	1	...	...	2	...	...	13	13	...	...	...	...	8	5	...	...	...	...	...	...
15 to 19 years.	1	...	...	3	3	...	...	6	5	...	...	...	...	12	4	...	...	...	...	...	...
20 to 24 years.	...	...	...	13	2	...	...	12	11	...	...	...	...	11	11	...	...	...	...	...	...
25 to 29 years.	6	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30 to 34 years.	12	...	...	...	10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
35 to 39 years.	32	...	...	...	18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
40 to 44 years.	39	...	...	...	24	...	...	...	...	...	...	...	...	16	16	...	...	...	...	...	...
45 to 49 years.	55	...	...	...	36	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
50 to 54 years.	68	...	...	...	44	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
55 to 59 years.	85	...	...	...	60	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
60 to 64 years.	52	...	...	...	39	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
65 to 69 years.	40	...	...	...	34	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
70 to 74 years.	30	...	...	...	27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
75 to 79 years.	29	...	...	...	43	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
80 to 84 years.	15	...	...	...	26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
85 years and over.	10	...	...	...	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colored.	6	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chinese.	14	...	...	6	7	...	...	...	5	...	...	...	...	5	8	...	...	...	...	...	...
Japanese.	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Indian.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

BUREAU OF RECORDS

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

	General Diseases—Continued.										Diseases of Nervous System and Organs of Sense.												
	Anæmia Chlorosis		Other General Diseases.		Alcoholism Acute and Chronic.		Lead Poisoning		Other Chronic Poisonings of Occupation		Other Chronic Poisonings.		Encephalitis		Simple Meningitis (of which)		Cerebro-Spinal Meningitis.		Locomotor Ataxia		Other Diseases of Spinal Cord (of which)		
M.	P.	M.	F.	M.	F.	M.	P.	M.	P.	M.	P.	M.	P.	M.	P.	M.	P.	M.	P.	M.	P.		
Total by sexes.....	87	155	44	30	104	58	14	...	...	2	1	35	8	22	8	260	168	164	98	67	18	110	83
Under 1 year.....	3	...	11	7	...	...	...	...	...	...	...	...	...	2	...	51	34	37	18	...	...	4	3
1 year.....	1	...	2	1	...	1	...	...	...	...	...	...	...	1	...	20	17	10	5	...	...	8	6
2 years.....	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	11	9	7	5	...	...	1	3
3 years.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12	5	5	5	...	...	1	3
4 years.....	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	7	6	5	4	...	...	...	2
Total under 5 years.....	5	1	16	15	...	1	...	...	...	...	...	...	...	3	1	110	71	74	42	...	...	19	16
5 to 9 years.....	1	1	6	...	...	...	...	...	...	...	...	...	...	3	...	26	22	17	16	...	...	5	2
10 to 14 years.....	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	15	7	6	4	...	...	2	1
15 to 19 years.....	1	3	3	3	...	...	...	...	...	1	...	...	...	...	...	20	11	11	6	...	...	3	1
20 to 24 years.....	3	9	3	2	...	...	...	...	...	...	...	...	...	...	...	28	13	21	9	...	...	1	2
25 to 29 years.....	5	8	3	1	...	...	...	...	...	...	...	...	...	...	...	12	5	5	2	...	...	3	3
30 to 34 years.....	6	13	3	...	...	...	...	...	...	...	...	...	...	...	...	10	4	8	4	...	...	3	3
35 to 39 years.....	5	9	3	...	...	...	...	...	...	...	...	...	...	...	...	10	4	4	4	...	...	3	2
40 to 44 years.....	6	15	1	1	...	...	...	...	...	...	...	...	...	...	...	8	6	4	3	...	...	5	6
45 to 49 years.....	6	16	1	1	...	...	...	...	...	...	...	...	...	...	...	3	4	4	1	...	...	7	4
50 to 54 years.....	8	20	2	2	...	...	...	...	...	...	...	...	...	...	...	10	5	6	1	...	...	10	5
55 to 59 years.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	4	1	1	...	...	16	9
60 to 64 years.....	11	15	...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	2	...	...	...	8	9
65 to 69 years.....	12	20	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	6
70 to 74 years.....	10	23	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
75 to 79 years.....	4	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
80 to 84 years.....	4	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
85 years and over.....	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colored.....	1	1	...	...	2	...	...	...	...	...	...	3	1	...	...	16	11	9	9	3	...	1	2
Chinese.....	3
Japanese.....
Indian.....

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

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BUREAU OF RECORDS

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

Diseases of Nervous System and Organs of Sense—Continued.										Diseases of Circulatory System.											
Neuralgia and Neuritis.		Other Nervous Diseases.		Follicular Conjunctivitis.		Other Diseases of Eye and Appendages.		Diseases of Ear.		Pericarditis.		Acute Endocarditis.		Organic Heart Disease.		Angina Pectoris.		Diseases of Arteries, Aneurism, Etc.		Thrombosis	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
5	8	119	93	...	1	3	1	156	105	20	20	143	142	5,983	6,220	212	97	1,339	1,355	59	63
Total by sexes.....																					
Under 1 year.....		8	3	...	...	...	...	23	21	...	...	7	3	17	16	...	...	2	...	1	...
1 year.....		2	6	...	...	...	...	15	14	...	...	3	3	2	10	...	...	...	...	...	...
2 years.....		8	3	...	...	...	...	10	2	...	...	2	2	6	5	...	...	...	...	...	...
3 years.....	1	3	3	...	...	...	...	2	6	...	...	3	3	8	10	...	...	...	...	...	...
4 years.....		1	1	...	...	1	...	4	2	...	...	2	...	6	11	...	...	...	...	...	...
Total under 5 years...	1	22	15	...	...	1	...	54	45	...	...	17	11	39	52	...	...	3	...	2	...
5 to 9 years.....		11	11	...	...	...	...	17	12	...	...	8	11	69	64	...	...	...	...	1	...
10 to 14 years.....		5	6	...	...	...	...	7	11	...	...	6	12	93	122	...	...	...	...	...	...
15 to 19 years.....	1	4	6	...	...	...	...	11	4	...	...	9	10	106	116	...	...	...	...	...	...
20 to 24 years.....		12	3	...	...	...	...	9	4	...	...	6	11	115	148	...	...	...	...	...	...
25 to 29 years.....	1	9	3	...	...	...	...	13	4	...	...	9	10	143	199	...	...	...	...	...	...
30 to 34 years.....	1	7	7	...	...	...	...	6	4	...	...	10	7	181	180	...	...	...	...	...	...
35 to 39 years.....	1	7	8	...	...	...	...	10	4	...	...	8	11	241	254	...	...	...	...	...	...
40 to 44 years.....	...	...	...	...	...	...	...	4	5	...	...	11	13	343	334	...	...	...	...	...	...
45 to 49 years.....	1	3	9	...	...	...	...	8	4	...	...	16	10	415	413	...	...	...	...	...	...
50 to 54 years.....	...	...	...	...	...	...	...	6	3	...	...	10	7	597	497	...	...	...	...	...	...
55 to 59 years.....	1	7	11	...	...	...	...	7	5	...	...	10	11	599	533	...	...	...	...	...	...
60 to 64 years.....	...	...	...	...	...	...	...	3	1	...	...	7	4	775	693	...	...	...	...	...	...
65 to 69 years.....	...	...	...	...	...	...	...	...	...	...	...	11	6	673	716	...	...	...	...	...	...
70 to 74 years.....	...	...	...	...	...	...	...	...	...	...	...	2	2	639	721	...	...	...	...	...	...
75 to 79 years.....	...	...	...	...	...	...	...	...	...	...	...	1	1	449	575	...	...	...	...	...	...
80 to 84 years.....	...	...	...	...	...	...	...	...	...	...	...	3	3	345	360	...	...	...	...	...	...
85 years and over.....	...	...	...	...	...	...	...	...	...	...	...	...	...	155	250	...	...	...	...	...	...
Colored.....		1	...	...	...	...	...	2	3	...	...	7	7	183	231	...	...	...	...	1	2
Chinese.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Japanese.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Indian.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

	Diseases of Circulatory System— Continued.						Diseases of Respiratory System.												Pleurisy.					
	Diseases of Veins (Hæmorrhoids, Varicose, Phlebitis, Etc.)			Diseases of Lymphatics, (Lymphangitis, Etc.)			Hemorrhage.		Diseases of Nasal Fossæ.		Diseases of Larynx.		Diseases of Thyroid Glands.		Acute Bronchitis.		Chronic Bronchitis.				Broncho Pneumonia.		Lobar Pneumonia.	
	M.	F.		M.	F.		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			M.	F.	M.	F.
Total by sexes.....	16	22	41	21	13	1	6	7	18	7	3	30	367	393	93	77	3,625	3,362	7,567	6,074	175	99		
Under 1 year.....	21	13	...	...	...	1	4	...	...	...	218	211	2	4	999	760	446	318	9	11		
1 year.....	5	...	...	...	...	...	...	1	...	...	52	56	1	1	582	514	384	346	19	9		
2 years.....	2	...	...	...	...	1	...	...	...	...	18	14	1	...	191	183	152	146	1	4		
3 years.....	3	...	...	...	...	...	2	1	...	...	3	7	...	...	92	117	89	97	7	6		
4 years.....	2	...	52	57	68	68	3	3		
Total under 5 years.....	31	14	...	...	1	2	7	2	...	...	291	293	6	6	1,916	1,631	1,126	975	39	33		
5 to 9 years.....	2	1	...	...	...	...	1	1	...	...	5	6	...	...	106	126	152	196	7	6		
10 to 14 years.....	2	1	...	...	...	...	...	...	...	...	...	...	1	...	38	70	136	178	1	1		
15 to 19 years.....	1	...	...	...	...	...	...	...	...	1	...	...	...	78	72	314	280	9	3		
20 to 24 years.....	2	1	...	...	...	...	1	2	...	...	2	...	...	...	195	183	601	694	13	5		
25 to 29 years.....	1	...	...	...	...	...	...	...	...	...	6	...	...	262	295	950	927	17	11		
30 to 34 years.....	2	2	...	...	...	...	...	...	...	...	...	4	...	...	264	187	943	697	6	4		
35 to 39 years.....	1	2	1	...	...	...	...	...	1	3	...	...	3	1	...	...	164	126	778	421	13	7
40 to 44 years.....	3	2	...	...	80	79	531	270	8	3		
45 to 49 years.....	3	3	...	...	101	62	465	223	17	5		
50 to 54 years.....	1	1	...	...	...	...	1	3	...	...	3	4	...	...	82	55	397	216	8	6		
55 to 59 years.....	3	4	...	...	62	55	397	216	8	6		
60 to 64 years.....	1	1	...	...	...	...	1	...	...	...	3	4	...	...	62	55	397	216	8	6		
65 to 69 years.....	2	2	...	...	...	...	...	...	...	...	3	4	...	...	62	55	397	216	8	6		
70 to 74 years.....	2	2	...	...	...	...	...	...	...	...	3	4	...	...	62	55	397	216	8	6		
75 to 79 years.....	2	2	...	...	...	...	...	...	...	...	3	4	...	...	62	55	397	216	8	6		
80 to 84 years.....	2	2	...	...	...	...	...	...	...	...	3	4	...	...	62	55	397	216	8	6		
85 years and over.....	2	2	...	...	...	...	...	...	...	...	3	4	...	...	62	55	397	216	8	6		
Colored.....	1	3	...	...	1	...	1	...	...	...	23	14	3	3	153	118	420	257	6	3		
Chinese.....	6	...	39	...	1	...		
Japanese.....	11	...	...	...
Indian.....		

BUREAU OF RECORDS

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

Diseases of Respiratory System—Continued.										Diseases of Digestive System.											
Congestion of Lungs		Gangrene of Lung.		Asthma.		Pulmonary Emphysema.		Other Diseases of Respiratory System.		Diseases of Teeth and Gums.		Other Diseases of Mouth.		Angina and Other Diseases of Pharynx.		Diseases of Esophagus.		Ulcer of the Stomach.		Other Diseases of Stomach (Cancer excepted).	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
23	19	8	1	66	61	11	11	53	15	24	15	5	7	60	43	4	3	208	81	58	54
1	4	...	...	1	2	...	...	1	...	3	...	2	3	11	2	...	...	2	1	26	9
1	2	...	...	...	...	...	1	...	3	...	...	...	...	...	...	...	2	1
2	1	...	...	...	...	...	...	...	...	...	...
...
4	3	2	...	...	2	...	...	...	...	...	...	...	...	...	2	...	...	...
Total under 5 years...	4	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5 to 9 years...	1	...	...	...	...	...	...	...	...	...	...	...
10 to 14 years...
15 to 19 years...
20 to 24 years...
25 to 29 years...
30 to 34 years...
35 to 39 years...
40 to 44 years...
45 to 49 years...
50 to 54 years...
55 to 59 years...
60 to 64 years...
65 to 69 years...
70 to 74 years...
75 to 79 years...
80 to 84 years...
85 years and over...
Colored...	2	1	...	...	2	...	...	1	...	...	...	...	...	...	2	...	...	...
Chinese...	1	...	...	...
Japanese...
Indian...

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

Diseases of Digestive System—Continued.																																										
Diarrhoea and Enteritis (under 2 years).		Diarrhoea and Enteritis (2 years and over).		Intestinal Parasites		Appendicitis and Typhlitis		Hernia, Intestinal Obstruction		Diseases of Anus and Stercoral Fistulae.		Other Diseases of Intestines		Acute Yellow Atrophy of Liver.		Hydatid Tumor of Liver		Cirrhosis of Liver		Biliary Calculi.																						
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.																					
Total by sexes.....																						1,344	1,069	177	177	1	2	334	250	333	325	17	17	35	13	7	3	3	314	119	51	131
Under 1 year.....																						1,142	890	5	2	53	28	2	1
1 year.....																						263	179	4	1	9	6
2 years.....																						45	36
3 years.....																						21	18
4 years.....																						10	12
5 years.....																						1,344	1,069	76	66	20	13	71	40
5 to 9 years.....																						14	8	1	...	27	25	6	5	1	1	2	1	1
10 to 14 years.....																						1	4	25	12	1	1
15 to 19 years.....																						2	3	23	23	1	4
20 to 24 years.....																						3	3	30	29	9	5	1	2	1	1
25 to 29 years.....																						3	4	27	24	8	6
30 to 34 years.....																						3	2	31	30	11	11
35 to 39 years.....																						3	4	34	23	24	18
40 to 44 years.....																						6	4	26	17	12	13
45 to 49 years.....																						7	3	23	13	12	13
50 to 54 years.....																						9	5	30	13	23	23
55 to 59 years.....																						4	4	11	13	24	34
60 to 64 years.....																						9	9	9	6	30	33
65 to 69 years.....																						11	13	10	3	20	39
70 to 74 years.....																						3	16	3	3	21	26
75 to 79 years.....																						6	14	1	...	13	23
80 to 84 years.....																						5	7
85 years and over.....																						1	3	5	3
Colored.....																						50	46	6	3	7	3	3	10
Chinese.....																						2
Japanese.....																					
Indian.....																					

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918--Continued.

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DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

Diseases of Genito Urinary System—Continued.																									Puerperal Diseases			
Diseases of the Prostate.		Non-Veneral Diseases of Male Genital Organs.		Uterine Hemorrhage (not Puerperal).		Uterine Tumor (not Cancer).		Metritis.		Other Diseases of Uterus.		Ovarian Cysts and Tumors.		Salpingitis and Other Diseases of Female Genital Organs.		Diseases of Breast not Puerperal (or Cancer).		Accidents of Pregnancy.		Puerperal Hemorrhage								
																				M.	F.							
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.							
Total by sexes.....																							95	88				
Under 1 year.....																							...	...		
1 year.....																							...	...		
2 years.....																							...	...		
3 years.....																							...	...		
4 years.....																							...	...		
Total under 5 years...																							...	...		
5 to 9 years.....																							...	...		
10 to 14 years.....																							...	...		
15 to 19 years.....																							...	...		
20 to 24 years.....																							...	...		
25 to 29 years.....																							...	...		
30 to 34 years.....																							...	...		
35 to 39 years.....																							...	...		
40 to 44 years.....																							...	...		
45 to 49 years.....																							...	...		
50 to 54 years.....																							...	...		
55 to 59 years.....																							...	...		
60 to 64 years.....																							...	...		
65 to 69 years.....																							...	...		
70 to 74 years.....																							...	...		
75 to 79 years.....																							...	...		
80 to 84 years.....																							...	...		
85 years and over....																							...	...		
Colored.....																							...	...		
Chinese.....																							...	...		
Japanese.....																							...	...		
Indian.....																							...	...		

BUREAU OF RECORDS

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

Puerperal Diseases—Continued.															Diseases of Skin and Cellular Tissue.							
Other Accidents of Labor.				Puerperal Septicaemia.		Puerperal Albuminuria and Convulsions.		Puerperal Phlegmasia Alba Dolens.		Puerperal Embolism and Sudden Death.		Sequel of Delivery .		Puerperal Insanity.		Puerperal Diseases of Breast.		Gangrene.		Carbuncle.		
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Total by sexes.....				61	202	....	184	....	4	....	20	....	7	....	3	....	5	....	24	17	39	11
Under 1 year.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	5	....
1 year.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
2 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
3 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
4 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total under 5 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
5 to 9 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
10 to 14 years.....				1	7	....	17	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
15 to 19 years.....				10	55	....	42	....	2	....	1	....	....	....	....	....	....	....	....	....	....	....
20 to 24 years.....				18	63	....	57	....	2	....	4	....	....	....	....	....	....	....	....	....	....	....
25 to 29 years.....				12	42	....	33	....	2	....	7	....	....	....	....	....	....	....	....	....	....	....
30 to 34 years.....				14	20	....	24	....	....	....	7	....	....	....	....	....	....	....	....	....	....	....
35 to 39 years.....				4	15	....	10	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
40 to 44 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
45 to 49 years.....				1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
50 to 54 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
55 to 59 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
60 to 64 years.....				1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
65 to 69 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
70 to 74 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
75 to 79 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
80 to 84 years.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
85 years and over.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Colored.....				....	15	....	8	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Chinese.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Japanese.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Indian.....				....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

	Diseases of Skin and Cellular Tissue—Continued.						Diseases of Locomotory System.						Malformations.				Diseases of Infancy.							
	Phlegmon, Acute Abscess.			Other Diseases of Skin and Adnexa.			Diseases of Bones (Non-Tuberculous).			Arthritis, Diseases of Joints (except Tuberculosis and Rheumatism).			Other Diseases of Organs of Locomotion.		Congenital Malformations.		Congenital Debility, Icterus and Sclerema.		Other Diseases Peculiar to Infancy (of which).		Injury During Birth.		Neglect.	
	M.	F.		M.	F.		M.	F.		M.	F.		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Total by sexes.....	51	33		22	23		71	37		8	3		1	2	368	284	2,026	1,526	699	469	292	148	2	....
Under 1 year.....	12	10		10	7		4	4		...	...		...	...	383	269	2,026	1,526	699	469	292	148	2	....
1 year.....	3	...		...	2		3	...		...	...		...	...	...	...	...	...	...	...	...	...	...	...
2 years.....	1	...		...	...		2	3		...	...		...	...	...	...	...	...	...	...	...	...	...	...
3 years.....	...	1		...	...		1	2		...	...		...	...	...	...	...	...	...	...	...	...	...	...
4 years.....	...	...		...	...		...	1		...	...		...	...	...	...	...	...	...	...	...	...	...	...
5 years.....	16	11		10	9		10	10		1	...		...	...	...	...	1,526	...	699	...	292	148	2	....
Total under 5 years...	...	...		...	...		...	...		...	...		...	...	...	...	...	...	...	...	...	...	...	...
5 to 9 years.....	1	2		...	...		8	9		...	2		...	...	...	...	...	...	...	...	...	...	...	...
10 to 14 years.....	2	1		...	...		10	3		...	...		...	...	...	...	...	...	...	...	...	...	...	...
15 to 19 years.....	2	2		...	...		9	2		...	...		...	...	...	...	...	...	...	...	...	...	...	...
20 to 24 years.....	1	1		...	...		2	1		...	...		...	...	...	...	...	...	...	...	...	...	...	...
25 to 29 years.....	2	3		...	...		2	2		...	...		...	...	...	...	...	...	...	...	...	...	...	...
30 to 34 years.....	2	3		...	...		2	2		...	...		...	...	...	...	...	...	...	...	...	...	...	...
35 to 39 years.....	3	1		...	...		6	2		...	...		...	...	...	...	...	...	...	...	...	...	...	...
40 to 44 years.....	3	1		...	...		6	1		...	...		...	...	...	...	...	...	...	...	...	...	...	...
45 to 49 years.....	5	...		...	...		6	4		...	...		...	...	...	...	...	...	...	...	...	...	...	...
50 to 54 years.....	...	...		...	...		3	...		...	...		...	...	...	...	...	...	...	...	...	...	...	...
55 to 59 years.....	4	2		...	...		3	3		...	...		...	...	...	...	...	...	...	...	...	...	...	...
60 to 64 years.....	4	...		...	...		3	2		...	...		...	...	...	...	...	...	...	...	...	...	...	...
65 to 69 years.....	...	...		...	...		...	...		...	...		...	...	...	...	...	...	...	...	...	...	...	...
70 to 74 years.....	...	...		...	...		...	...		...	...		...	...	...	...	...	...	...	...	...	...	...	...
75 to 79 years.....	...	...		...	...		...	...		...	...		...	...	...	...	...	...	...	...	...	...	...	...
80 to 84 years.....	1	...		...	...		...	...		...	...		...	...	...	...	...	...	...	...	...	...	...	...
85 years and over....	...	...		...	...		...	...		...	...		...	...	...	...	...	...	...	...	...	...	...	...
Colored.....	...	...		1	...		1	...		1	...		...	...	6	10	79	72	32	19	8	3	...	...
Chinese.....
Japanese.....
Indian.....

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

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DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

External Causes—Continued.

	Poisoning by Food.		Bites of Venomous Animals.		Other Acute Poisonings.		Conflagrations.		Burns and Scalds.		Absorption of Deleterious Gases.		Accidental Submersion.		Pistol and Gunshot Wound.		Cuts and Stabs.		Deaths by Falls.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Total by sexes.....	8	9	2	1	34	20	46	28	193	294	401	202	376	37	20	4	7	4	631	291
Under 1 year.....	1	1	...	...	2	...	2	...	12	9	12	17	2	1	...	...	...	...	3	2
1 year.....	...	...	1	...	...	...	...	...	38	23	4	1	...	...	...	...	...	...	20	9
2 years.....	...	...	...	...	...	...	...	...	31	32	2	...	...	...	...	...	...	...	16	11
3 years.....	...	...	...	...	...	...	...	...	19	24	...	1	...	...	...	...	...	...	14	8
4 years.....	1	...	...	...	...	...	...	...	12	35	2	2	...	...	...	...	...	...	18	9
Total under 5 years.....	2	2	3	...	3	...	6	3	112	123	20	22	5	2	...	1	2	1	71	39
5 to 9 years.....	...	...	...	...	...	...	2	2	23	60	4	1	27	2	3	...	...	...	52	20
10 to 14 years.....	2	...	...	...	...	...	1	1	2	7	3	4	...	...	4	...	...	...	22	7
15 to 19 years.....	...	1	...	...	...	...	...	...	4	3	6	7	...	...	...	...	...	...	38	6
20 to 24 years.....	...	...	...	...	...	...	...	...	4	6	13	16	...	...	...	...	...	...	35	8
25 to 29 years.....	...	...	...	...	...	...	...	...	4	6	28	13	...	...	...	...	...	...	47	10
30 to 34 years.....	...	...	...	...	...	...	...	...	4	16	35	18	...	...	...	...	...	...	40	17
35 to 39 years.....	...	...	...	...	...	...	...	...	4	17	37	18	...	...	...	...	...	...	49	17
40 to 44 years.....	1	...	...	...	...	...	...	...	4	10	36	14	...	...	...	...	...	...	49	12
45 to 49 years.....	3	2	...	...	...	...	...	...	4	8	32	14	...	...	...	...	...	...	53	12
50 to 54 years.....	...	...	...	...	...	...	...	...	2	6	33	20	...	...	...	...	...	...	50	13
55 to 59 years.....	...	...	...	...	...	...	...	...	5	8	35	10	...	...	...	...	...	...	41	12
60 to 64 years.....	...	...	...	...	...	...	...	...	7	13	34	14	...	...	...	...	...	...	34	24
65 to 69 years.....	...	...	...	...	...	...	...	...	2	10	32	11	...	...	...	...	...	...	25	36
70 to 74 years.....	...	...	...	...	...	...	...	...	2	8	25	12	...	...	...	...	...	...	25	36
75 to 79 years.....	...	...	...	...	...	...	...	...	...	3	9	14	...	...	...	...	...	...	11	10
80 to 84 years.....	...	...	...	...	...	...	...	...	...	1	7	12	...	...	...	...	...	...	11	24
85 years and over.....	...	...	...	...	...	...	...	...	...	2	2	1	...	...	...	...	...	...	4	9
Colored.....	...	...	...	...	...	...	...	...	2	10	21	7	...	...	...	...	...	...	13	10
Chinese.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Japanese.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Indian.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

BUREAU OF RECORDS

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

External Causes—Continued.

	Deaths in Mines and Quarries.		Deaths by Machinery.		Deaths by Other Crushing Agencies, Wagons, &c.		Deaths by Animals not Snakebites, Hydrophobia or Stings.		Hunger and Thirst		Excessive Cold.		Sunstroke.		Lightning.		Other Electrical Accidents.		Homicides by Firearm.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Total by sexes.....	1	13	72	13	991	275	11	2	2	2	20	14	53	34	3	19	120	17		
Under 1 year.....					1	4														
1 year.....					4	4														
2 years.....					5	4														
3 years.....					32	12	1													
4 years.....					29	4														
Total under 5 years.....					71	24	1												1	1
5 to 9 years.....					156	45														
10 to 14 years.....			4	1	100	27	1													
15 to 19 years.....			12	3	51	12														
20 to 24 years.....			17		41	21														
25 to 29 years.....			10	2	64	14														
30 to 34 years.....			19	1	64	17	1													
35 to 39 years.....			4		67	9	1													
40 to 44 years.....			6		64	15														
45 to 49 years.....			6	2	80	14	3													
50 to 54 years.....			5	1	61	14	3													
55 to 59 years.....			3	1	41	19	2													
60 to 64 years.....			3	1	56	15														
65 to 69 years.....			3	1	32	12														
70 to 74 years.....	1		1	1	22	7														
75 to 79 years.....			1		11	7														
80 to 84 years.....					6	3														
85 years and over.....					4															
Colored.....			2	2	23	3													10	3
Chinese.....					2															
Japanese.....																				
Indian.....																				

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

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BUREAU OF RECORDS

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

Summary—Continued.

	Cancer.		Diseases of the Nervous System and Organs of Sense.		Diseases of Circulatory System.		Diseases of Respiratory System.		Diseases of Digestive System.		Diseases of Genito Urinary System.		Puerperal Diseases.		Diseases of the Skin and Cellular Tissue.		Diseases of Locomotory System.		Malformations.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Total by sexes.....	2,143	2,789	1,643	1,288	7,719	7,941	12,015	10,186	3,063	2,445	3,000	2,979	.....	664	136	84	80	42	398	284
Under 1 year.....	6	2	124	89	48	83	1,682	1,311	1,252	989	29	10	.....	.....	28	20	4	4	392	249
1 year.....	4	2	63	45	10	12	1,041	990	222	180	8	7	.....	.....	4	2	2	.....	18	10
2 years.....	2	1	35	20	10	17	363	248	64	85	8	5	.....	.....	1	.....	2	.....	6	6
3 years.....	5	2	22	21	15	15	194	228	24	25	5	5	.....	.....	.....	1	1	.....	3	2
4 years.....	1	4	15	13	9	13	115	134	20	25	5	6	.....	.....	.....	2	.....	.....	.....	.....
Total under 5 years..	15	11	269	157	92	80	3,397	2,960	1,583	1,234	53	35	.....	.....	33	25	11	10	390	277
5 to 9 years.....	3	6	65	52	80	69	272	335	63	49	13	15	.....	.....	13	2	8	11	3	4
10 to 14 years.....	2	2	40	20	100	124	173	253	24	24	12	17	.....	.....	2	2	11	4	2	1
15 to 19 years.....	4	13	49	34	118	130	407	398	47	39	23	32	.....	.....	5	4	10	1	1	.....
20 to 24 years.....	18	9	77	41	126	163	823	896	63	60	27	72	.....	.....	3	3	2	2	.....	2
25 to 29 years.....	25	38	71	38	158	215	1,239	1,244	64	62	57	93	.....	.....	8	8	3	3	.....	.....
30 to 34 years.....	43	65	75	51	209	309	1,216	1,023	90	74	83	115	.....	.....	146	4	3	3	.....	.....
35 to 39 years.....	75	146	88	51	286	376	947	893	125	92	124	160	.....	.....	100	2	4	4	.....	.....
40 to 44 years.....	125	252	88	73	418	375	643	595	141	90	190	264	.....	.....	46	4	4	4	.....	.....
45 to 49 years.....	214	343	107	82	542	492	614	305	143	103	228	245	.....	.....	10	5	5	5	.....	.....
50 to 54 years.....	320	442	131	99	765	616	492	295	178	131	300	280	.....	.....	9	5	3	3	.....	.....
55 to 59 years.....	332	363	140	99	782	704	455	310	149	106	338	292	.....	.....	12	4	3	3	.....	.....
60 to 64 years.....	359	367	121	93	1,014	871	385	312	115	99	369	337	.....	.....	14	4	5	5	.....	.....
65 to 69 years.....	264	305	100	103	914	968	324	339	112	92	370	261	.....	.....	7	1	3	3	.....	.....
70 to 74 years.....	177	219	93	94	890	949	271	297	67	92	308	303	.....	.....	6	3	1	1	.....	.....
75 to 79 years.....	103	145	76	77	638	806	184	202	49	63	262	238	.....	.....	3	3	.....	.....	.....	.....
80 to 84 years.....	45	63	30	52	389	519	99	137	22	23	137	120	.....	.....	.....	4	.....	.....	.....	.....
85 years and over...	26	20	20	32	237	276	49	103	9	23	85	91	.....	.....	.....	2	.....	.....	.....	.....
Colored.....	27	95	55	43	230	280	610	396	80	79	75	113	.....	.....	1	.....	2	.....	6	10
Chinese.....	4	.....	.....	.....	16	.....	46	.....	.....	.....	7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Japanese.....	.....	.....	1	.....	3	.....	15	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indian.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

DEATHS BY SEX, AGE, AND CAUSE OF DEATH FOR 1918—Continued.

Summary—Continued.

	Diseases of Infancy.		Diseases of Old Age.		External Causes.		Suicides.		Homicides.		Accidents.		Ill Defined Causes.		Total Males.	Total Females.	Total Both Sexes.
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.			
Total by sexes.....	2,727	1,995	99	181	278	135	492	232	210	37	3,008	1,282	39	38	7,197	5,460	12,657
Under 1 year.....	2,727	1,995	.....	.....	46	50	.....	.....	4	6	42	44	2	1	2,251	2,051	4,302
1 year.....	80	40	.....	.....	3	1	77	39	11	20	970	909	1,879
2 years.....	59	51	.....	.....	1	.....	58	51	7	2	664	620	1,284
3 years.....	68	49	.....	.....	.....	2	68	49	4	.....	434	463	897
4 years.....	68	52	.....	.....	1	.....	67	50	.....	2	.....	.....	.....
5 years.....	321	242	.....	.....	9	9	312	233	24	25	11,516	9,503	21,019
Total under 5 years.....	2,727	1,995	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5 to 9 years.....	278	135	.....	.....	3	2	275	133	3	1	292	1,254	2,546
10 to 14 years.....	182	58	.....	.....	6	1	175	56	1	.....	828	1,780	2,608
15 to 19 years.....	202	57	.....	.....	17	2	175	46	.....	5	1,585	1,467	3,052
20 to 24 years.....	201	91	.....	.....	29	3	142	63	2	.....	2,738	3,159	5,897
25 to 29 years.....	299	99	.....	.....	31	3	221	65	4	2	3,945	3,983	7,928
30 to 34 years.....	303	98	.....	.....	31	3	213	66	3	1	3,967	3,161	7,128
35 to 39 years.....	309	93	.....	.....	29	4	229	64	2	.....	3,523	2,411	5,934
40 to 44 years.....	353	86	.....	.....	30	3	240	58	.....	2	3,532	2,202	5,734
45 to 49 years.....	306	86	.....	.....	15	4	229	58	.....	.....	3,550	2,184	5,734
50 to 54 years.....	269	74	.....	.....	12	1	208	57	.....	.....	3,325	2,383	5,708
55 to 59 years.....	210	70	.....	.....	4	1	163	75	.....	.....	3,403	2,320	5,723
60 to 64 years.....	181	60	.....	.....	3	2	183	74	.....	.....	3,081	2,592	5,673
65 to 69 years.....	124	78	.....	.....	.....	.....	183	72	.....	.....	2,687	2,370	5,057
70 to 74 years.....	85	48	.....	.....	.....	.....	42	42	.....	.....	1,637	1,431	3,068
75 to 79 years.....	55	47	.....	.....	.....	.....	27	47	.....	.....	1,491	1,045	2,536
80 to 84 years.....	37	21	.....	.....	.....	.....	11	15	.....	.....	803	1,043	1,846
85 years and over.....	12	16	.....	.....	.....	.....	.....	.....	.....	.....	474	748	1,222
Colored.....	111	91	1	9	125	55	14	5	21	5	90	45	1	4	1,961	1,713	3,674
Chinese.....	10	.....	1	.....	.....	.....	9	.....	.....	.....	168	171	339
Japanese.....	3	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....	.....	.....	56	7	63
Indian.....	1	.....	.....	.....	.....	.....	.....	.....	.....	9	2	11

BUREAU OF RECORDS

TOTAL DEATHS BY AGE GROUPS, YEAR 1918.

	Manhattan.			The Bronx.			Brooklyn.			Queens.			Richmond.			City of New York.		
	Males.	Fe- males.	Total Both Sexes.	Males.	Fe- males.	Total Both Sexes.	Males.	Fe- males.	Total Both Sexes.	Males.	Fe- males.	Total Both Sexes.	Males.	Fe- males.	Total Both Sexes.	Males.	Fe- males.	Total Both Sexes.
Total by sexes.....	23,092	19,718	43,410	6,593	5,266	10,859	18,149	16,255	34,404	3,673	3,400	7,073	1,421	952	2,373	52,528	45,591	98,119
Under 1 year.....	3,197	2,513	5,710	773	529	1,302	2,578	1,901	4,479	485	399	884	164	118	283	7,197	5,460	12,657
1 year.....	1,032	921	1,953	194	189	383	873	742	1,615	115	150	265	37	49	86	2,051	2,051	4,102
2 years.....	421	390	811	104	72	176	367	362	729	63	71	134	15	14	29	970	906	1,876
3 years.....	291	268	559	57	54	111	255	225	480	45	46	91	16	17	33	664	630	1,294
4 years.....	183	187	370	55	42	97	150	183	333	31	40	71	15	11	26	434	463	897
Total under 5 years.....	5,124	4,379	9,403	1,183	886	2,069	4,223	3,423	7,646	739	706	1,445	247	209	456	11,516	9,503	21,019
5 to 9 years.....	522	537	1,049	160	135	295	461	449	910	122	114	236	27	29	56	1,292	1,284	2,546
10 to 14 years.....	299	366	665	120	117	237	311	385	696	78	71	149	20	13	33	828	952	1,780
15 to 19 years.....	638	588	1,226	206	178	384	596	537	1,093	128	142	270	47	37	84	1,585	1,467	3,052
20 to 24 years.....	1,122	1,384	2,506	394	429	823	974	1,097	2,041	143	221	364	105	58	163	2,738	3,159	5,897
25 to 29 years.....	1,670	1,679	3,349	493	538	1,031	1,369	1,389	2,758	262	299	561	121	78	199	3,945	3,953	7,928
30 to 34 years.....	1,529	1,355	2,884	432	432	864	1,295	1,075	2,370	296	258	554	116	61	176	3,967	3,161	7,128
35 to 39 years.....	1,752	1,076	2,828	322	289	621	1,123	823	1,946	227	168	395	89	55	144	3,628	2,411	5,934
40 to 44 years.....	1,998	1,090	3,088	322	228	550	1,001	740	1,741	241	160	401	70	46	116	3,232	2,202	5,434
45 to 49 years.....	1,596	1,036	2,632	310	239	549	1,099	743	1,842	183	144	327	72	32	104	3,250	2,194	5,444
50 to 54 years.....	1,594	1,041	2,635	343	263	606	1,073	863	1,936	232	183	415	83	43	126	3,225	2,393	5,618
55 to 59 years.....	1,434	962	2,416	300	321	621	1,015	804	1,819	216	160	376	78	33	111	3,043	2,390	5,433
60 to 64 years.....	1,062	2,472	3,534	266	301	567	1,019	923	1,942	229	179	408	77	36	113	3,001	2,801	5,802
65 to 69 years.....	851	1,835	2,686	213	240	453	873	846	1,719	183	163	346	66	47	113	2,488	2,382	4,870
70 to 74 years.....	602	635	1,237	143	203	351	531	670	1,201	118	143	261	63	60	123	2,037	2,214	4,251
75 to 79 years.....	323	404	727	80	112	192	286	421	707	78	74	148	39	33	72	1,461	1,704	3,165
80 to 84 years.....	198	324	522	46	73	119	163	266	454	35	46	81	26	19	45	808	1,043	1,846
85 years and over.....	1,330	1,206	2,536	62	60	122	485	394	879	51	43	93	33	11	44	1,961	1,713	3,674
Colored.....	130	133	263	4	.....	4	22	22	.....	1	.....	1	11	.....	11	168	3	171
Chinese.....	45	.....	45	.....	.....	.....	7	.....	9	.....	.....	.....	3	.....	3	88	8	96
Japanese.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Indian.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

BUREAU OF PUBLIC HEALTH EDUCATION

Summary of Work for Year.

Lectures	Press Notices	Moving Pictures	Special Literature Issued	Requests for Health Literature	Requests for Photos Lantern Sticks and Exhibits
51	20	27	10	1910	190

SPECIAL ACTIVITIES.

Exhibits.

At request of Chef du Service des Expositions of Commission for Prevention of Tuberculosis in France, this Bureau prepared and arranged, with full explanatory notes, a set of lantern slides, and also a set of 8 inch by 10 inch unmounted photographs illustrating work of Department of Health in preventing spread of tuberculosis. With permission of the French High Commission, a box containing the above material, and literature on tuberculosis issued by the Department, and a brief lecture on the subject, was sent to the Commission for Prevention of Tuberculosis in France.

In coöperation with the Bureaus of Food and Drugs, and Child Hygiene, special exhibits were prepared for display at National Milk and Dairy Farm Exposition, held at the Grand Central Palace, May 20 to 27. Also coöperated with Chelsea Neighborhood Association in a week's Fly Campaign.

During epidemic of influenza, exhibit was prepared of various kinds of face masks, and masks used as a protection by industrial workers. Also the following window exhibits at headquarters: Patent Medicines, Poison Ivy, Care of Infants, Prevention of Flies and Mosquitoes, Prevention of Tuberculosis, Value of Milk as a Food, Value of Fresh Air, Liberty Loan, etc.

Visits to exhibits were made by the following groups: Student nurses at Teachers College taking post-graduate course; Morris High School students; City College of New York students; Barnard College students; School of Philanthropy students; DeWitt Clinton High School students; Colgate University students.

Posters.

"Give the Baby Milk." In coöperation with Borden's Condensed Milk Company and the Sheffield Farms Slawson Decker Company this poster was placed in over 300 milk stores. Over 200 were placed in parochial and public schools.

Placards—Influenza. Three kinds were issued, one for posting in street cars and public conveyances admonishing the public to cover up each cough or sneeze, and one calling attention of public to spitting, through which diseases are spread. The third was entitled "Help to Prevent the Return of the 'Flu' and Pneumonia!" These placards were posted in windows of retail stores, police precincts, hotels and other public places.

ANNUAL REPORT OF THE DEPARTMENT OF HEALTH

Contagious Disease Courses.

Two courses were given for physicians, at Willard Parker and Kingston Avenue Hospitals, also laboratory instruction.

General.

Coöperated in "Negro Health Week;" and in "Baby Week," at store of J. S. Bailey & Co., Brooklyn.

Coöperated with the Tuberculosis Committee of Brooklyn in tuberculosis poster contest among art students of High Schools. The posters were later exhibited in windows of the Department of Health.

Coöperated with the Civil Service Commission in organizing lectures in a First Aid Course.

Coöperated in making film on antitoxin, also concerning face masks to be used by persons coming in contact with influenza patients.

Coöperated with Military Commission, State of New York, to present to parochial school authorities information showing how this Bureau was prepared to coöperate in health education in parochial schools.

"Health Drive" carried on.

Food lectures were given at public schools as follows: Manhattan 1, Brooklyn 2, Bronx 2, Richmond 2.

Special stories were given out to the following: "New York World"—"How War Affected Vital Statistics." "Evening Post"—"Camp Conditions and the Girl Problem." "Scribner's"—"Mosquitoes." "United Press"—"Psychology of Pain." "American Journal of Public Health"—"Activities of the Department," monthly. "Popular Science Monthly"—"Gas Poisonings."

Coöperated in giving laboratory instruction to young men from Navy.

Special Literature Issued.

Progress Report, 1913-17. Reprint No. 63.

Placards, etc., Issued.

20,000 Influenza placards. 5,000 "Dry Sweeping" circulars. 20,000 Display sets for the railroads. 2,000 Spitting signs.

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